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OCTOBER
1934

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FLEET OWNER

Devoted to the Better Operation and Maintenance of Truck, Bus, Taxicab, Passenger Car and All Automotive Fleets

ARTICLES:

New Trucks for Old!
By Edwin Hunger

Analyzing a Fleet Operation
By E. J. Gribbons

Mechanical Refrigeration Experience
By H. Clay Fischer

Are Your Cost Records Troublesome?
By Wilson C. Bray

Make Every Turn a Good Turn
(A Safety Article)

Streamlined Bus Bodies
(How to Build 'Em)

ARE YOU BATTLING BATTERY MAINTENANCE COSTS?

A battery will deliver a certain amount of service if neglected altogether. But it will deliver many times that service if given periodic attention. Battery maintenance is a highly profitable investment—extending battery life, reducing the need for recharging, and cutting battery trouble to a minimum—when a high quality, long lasting, full powered battery such as an Exide is used.

Exides have the built-in quality that makes them respond to proper care, and at the same time they require less of it in order to stay on the job. Exides cut maintenance costs to rock bottom, and by doing so, offer unusual battery economy.

If you have been seeking ways and means of lowering battery maintenance costs, standardize on Exides and notice the difference they make. Operators of trucks and light delivery cars, using them in every type of service in all parts of the country, have found this to be true of Exides—they are a safe, sure way to save money. Exide Engineering Service, conducted by trained and experienced battery engineers, is available to fleet operators, free. Start now to cut costs with Exides.

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The World's Largest Manufacturers of Storage Batteries for Every Purpose
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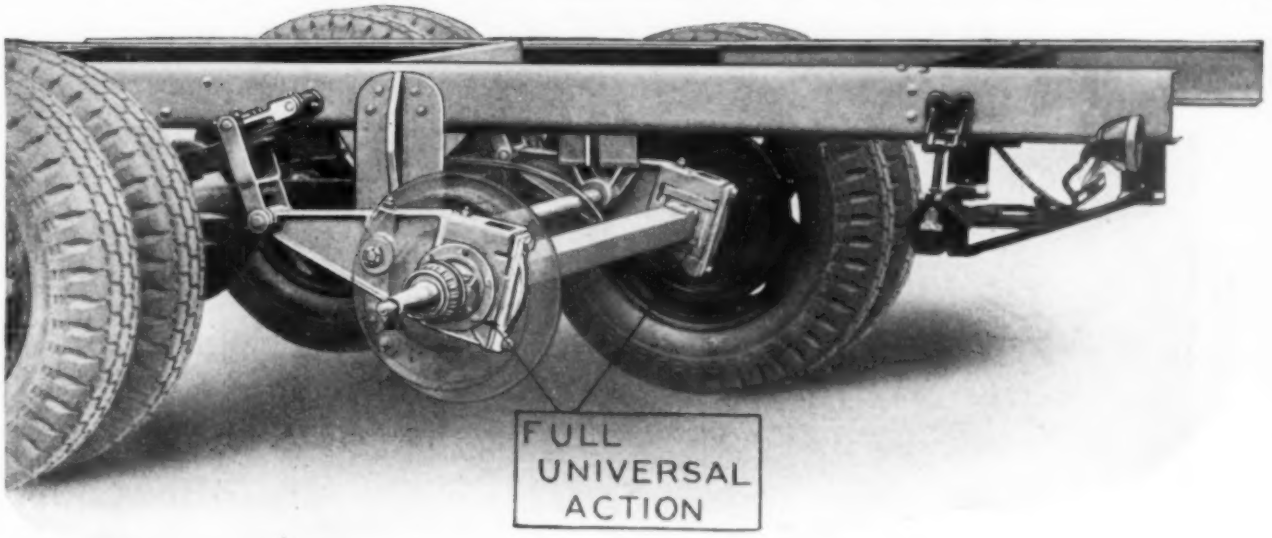
BATTERIES

FOR EVERY TYPE TRUCK

SIX-WHEEL ATTACHMENTS for FORD and CHEVROLET trucks



Illustrating Model 15 on a truck ready for work as a Six-Wheeler.

UTILITY

FIRST *TO INVENT*
FIRST *TO PERFECT*
FIRST *TO MARKET*
SIX-WHEEL ATTACHMENTS IN THE UNITED STATES

Utility Distributors

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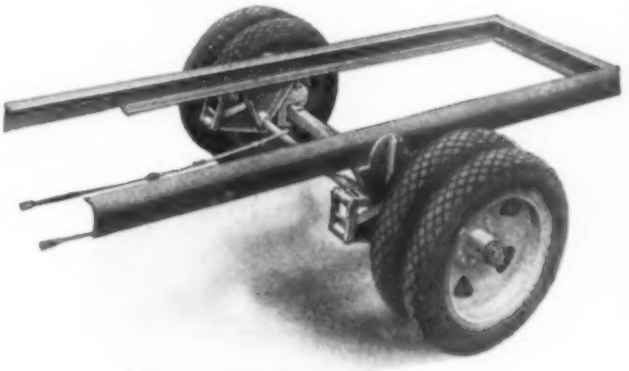
10 YEARS Continuous Experience with Truck Conversions in the EAST and WESTERN United States



Here is the Model 15 attachment for Ford and Chevrolet Trucks as shipped completely assembled, with frame extension. Ready to slip the extension over the truck frame, rivet or bolt it on, connect up the brake levers and spring shackles, move the spare tire carrier assembly to the rear, and drive away as a proven six wheel truck.

A FLEET OWNER THINKS THE ANTI-FREEZE PROBLEM CLEAR THROUGH:

"If I try to economize this winter by not using any anti-freeze at all, it's ten to one I'll have to pay for time lost on the road, towing, radiator repairs, and new engine parts—to say nothing of inconveniencing my customers by delayed deliveries.

"On the other hand, if I buy the highest priced anti-freezes on the market, I'll only be going too far to the other extreme.

"Still, if the radiators of my fleet have to be filled over and over again during the season because the cheap anti-freeze I bought is forever evaporating out of them, then I'll find, by the end of the winter, that I've again paid too much for protection.

"What I am really after is an anti-freeze that's made by a reliable concern, and that will give my fleet not only complete protection against freezing at any temperature, but also the most mileage per filling per dollar.

"So now, after looking them all over very carefully and fairly, I've made up my mind that the anti-freeze I'm going to buy this season is **ZERONE.***"

REG. U. S. PAT. OFF.

Afterthought: "The fact that ZERONE also protects the cooling system against rusting and corrosion will help cut my maintenance costs, too!"

* **ZERONE** *Anti-Rust* Anti-Freeze is made by E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.

Say "I saw it in FLEET OWNER"—It Helps!

First Butane Converted Gas-Electric Car

Southern Pacific Motor Car converted to use butane gas. First successful commercial application of this gas giving more economy, greater power and speed. Two six-cylinder Hall-Scott Model 300 engines. Magneto—dual ignition 12 Champion Spark Plugs each motor.

Champion engineers solve vexing spark plug problems for Southern Pacific

The Southern Pacific Company, operating a fleet of gas-electric rail cars uses Champion Spark Plugs exclusively to meet the exacting service requirements characteristic of this great transportation system.

For some time Southern Pacific has been operating these cars with a distillate fuel. Spark plug mileage was low, frequent replacements necessary. Spark plug manufacturers were invited to cooperate in handling these problems. With Champion Spark Plugs in these distillate burning jobs, spark plug mileage was increased from an average of 3000 miles per set to 9 and 11,000 miles per set.

Experiments with butane fuel convinced Southern Pacific engineers that worthwhile advances in the efficiency of these units could be made. Spark plugs again presented a vexing problem. With the use of butane gas much higher compression ratios were permissible than those normally associated with giant engines of this type.

Champion Spark Plugs for this new type of service were installed and here again Champion Spark Plugs demonstrated their ability to meet the most extreme conditions, ably assisting in carrying the experiments to a successful conclusion. It was found that car performance was better than ever before — greater engine power without detonation; elimination of obnoxious exhaust fumes; more complete combustion with no carbon deposits; no crankcase dilution resulting in greater mileage from lubricating oil; lower maintenance costs and less time in shop; easier engine starting, no time being required for warming up; an amazing increase in service from spark plugs, exhaust manifolds, oil filters and so forth. Spark plug life was stepped up to 25,000 to 30,000 miles per set.

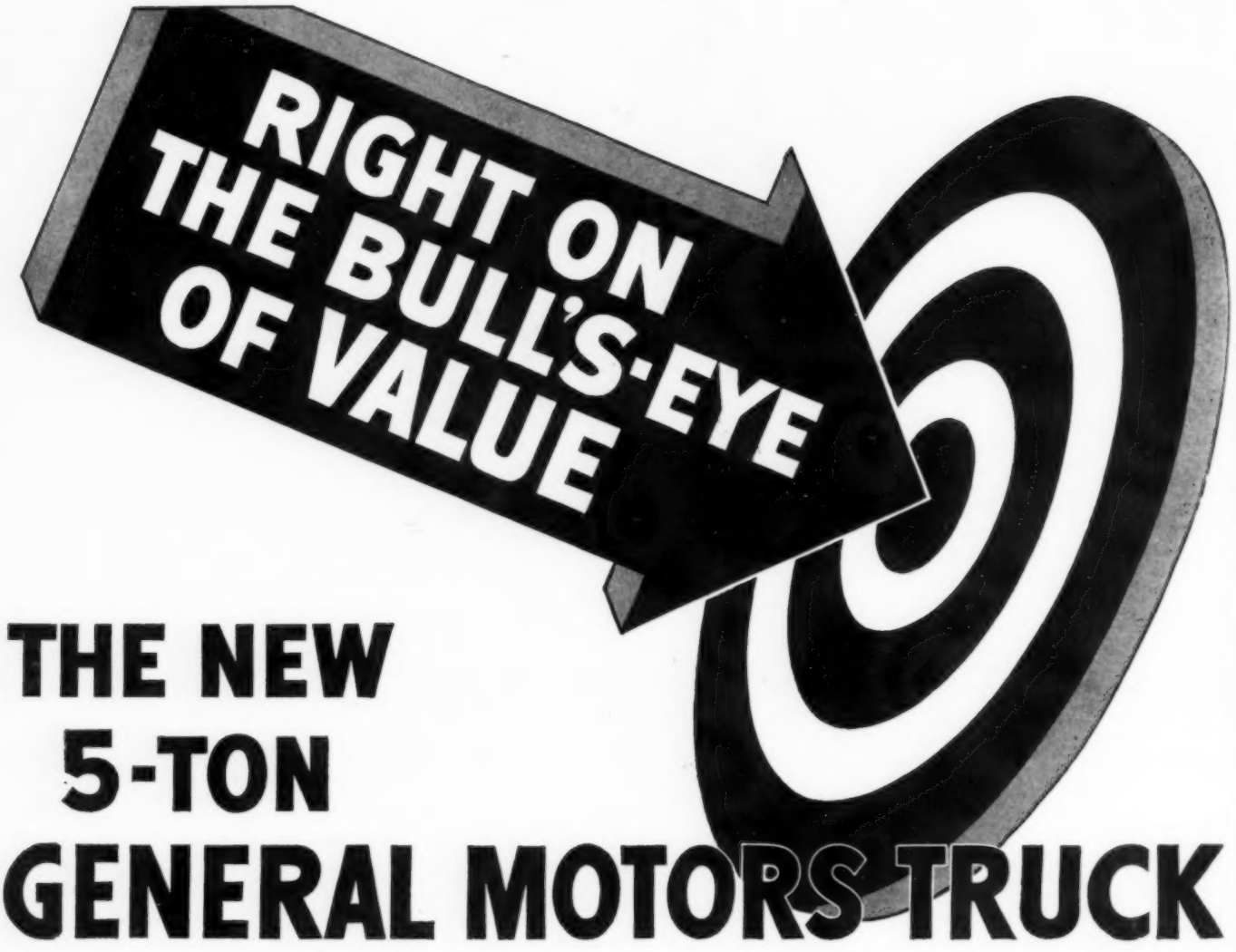
This is one of many instances where Champion engineers have cooperated in overcoming perplexing operation problems. To fleet owners and operators we extend an invitation to consult us on operation problems.

Champion Extra Range Spark Plugs will always meet the most modern and exacting engine requirements. In fleet and commercial car requirements Champion Spark Plugs will give you the better performance for which Champions are universally famous, together with greater dependability and economy.

USE THE SPARK PLUGS CHAMPIONS USE

CHAMPION
EXTRA-RANGE SPARK PLUGS

Say "I saw it in FLEET OWNER"—It Helps!



THE NEW 5-TON GENERAL MOTORS TRUCK

$1,000 less than the average 5-ton truck

Business men with 5-ton loads to haul will want to see, inspect and learn the facts about this big, husky money-maker. They can put it to work with full assurance that it will save time and save money, day after day, year in and year out.

Priced $1000 lower than the average price of all other leading 5-ton trucks, this modern General Motors truck is truly an exceptional value. It has a GMC valve-in-head engine, of course . . . develops 94 horsepower and 230 ft. lbs. of torque. Valve seat inserts are of stellite, the carburetor is of the downdraft type, the rugged frame is 9" deep, the booster brakes have an unusually large braking area, and the brake drums are of cast nickel iron for greater economy. Add to these features a score of others, including full-floating rear axle, needle bearing universals and rugged spoksteel wheels—and the proof of this truck's overwhelming value is crystal-clear.

Whatever your hauling needs may be, there's a General Motors truck that fits exactly—one that's "engineered for the job" and therefore a more efficient worker and earner. Any GMC dealer will gladly tell you more or the facts will be mailed upon request.

GENERAL MOTORS TRUCKS and Trailers

GENERAL MOTORS TRUCK COMPANY — *Time Payments Available Through Our Own Y. M. A. C.* — PONTIAC, MICHIGAN

The

FLEET OWNER

Published Monthly in the interests of Automotive Fleet Owners who maintain their own Repair and Service Shops and devoted to the better Operation and Maintenance of Truck, Trailer, Bus, Passenger Car, Taxicab and all Automotive Fleets.

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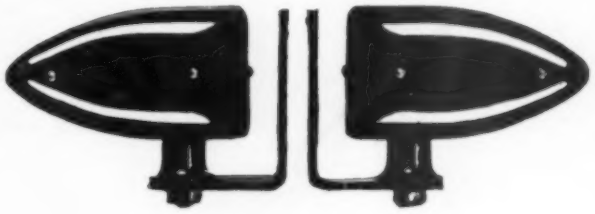
A TURNSIGNAL removes one of the most common causes for motor accidents and overcomes the most serious prejudice against trucks on our highways.



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TURNING SIGNAL

IS BUILT TO LAST

Is Ruggedly Constructed
Is Easily Installed
Reasonable in Price

Its Flashing Light Attracts Attention and Increases Distance of Visibility

The TURNSIGNAL is made in models for trucks, trailers and passenger cars.

Many superior features Found only in TURNSIGNAL

Solves the Signal Cutoff Problem

Officially approved by all states requiring turn signaling equipment.

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After all... it's the *Carburetor* that decides fuel mileage!

AN old, worn carburetor will ruin the good effects of the finest overhaul job. New rings, new plugs, even a re-bore with new pistons nicely fitted, can only *help* to better your gasoline mileage.

After all, it's the Carburetor that has to meter out your mixture, and *carburetors wear out.*

Why not, on your next major motor job, replace the carburetor with an "SF" Stromberg, famous for heavy-duty truck and bus service? You're simply *bound* to get better performance. And even a small fuel saving will quickly pay for the new carburetor—from then on it's "velvet." The "SF" is built in 5 sizes: 1″, 1¼″, 1½″, 1¾″ and 2″. Moderate price. With or without accelerating pump and Vacuum Economizer, and usable with or without governors.

and this famous
HEAVY-DUTY "SF"
decides in your favor

•

SPECIFY STROMBERG! Stromberg Carburetors are used on more makes of American cars than all other carburetors combined. Efficiency put them there. Specify the Stromberg Carburetor when you add to your fleet . . . it will mean money saving every mile of operation.

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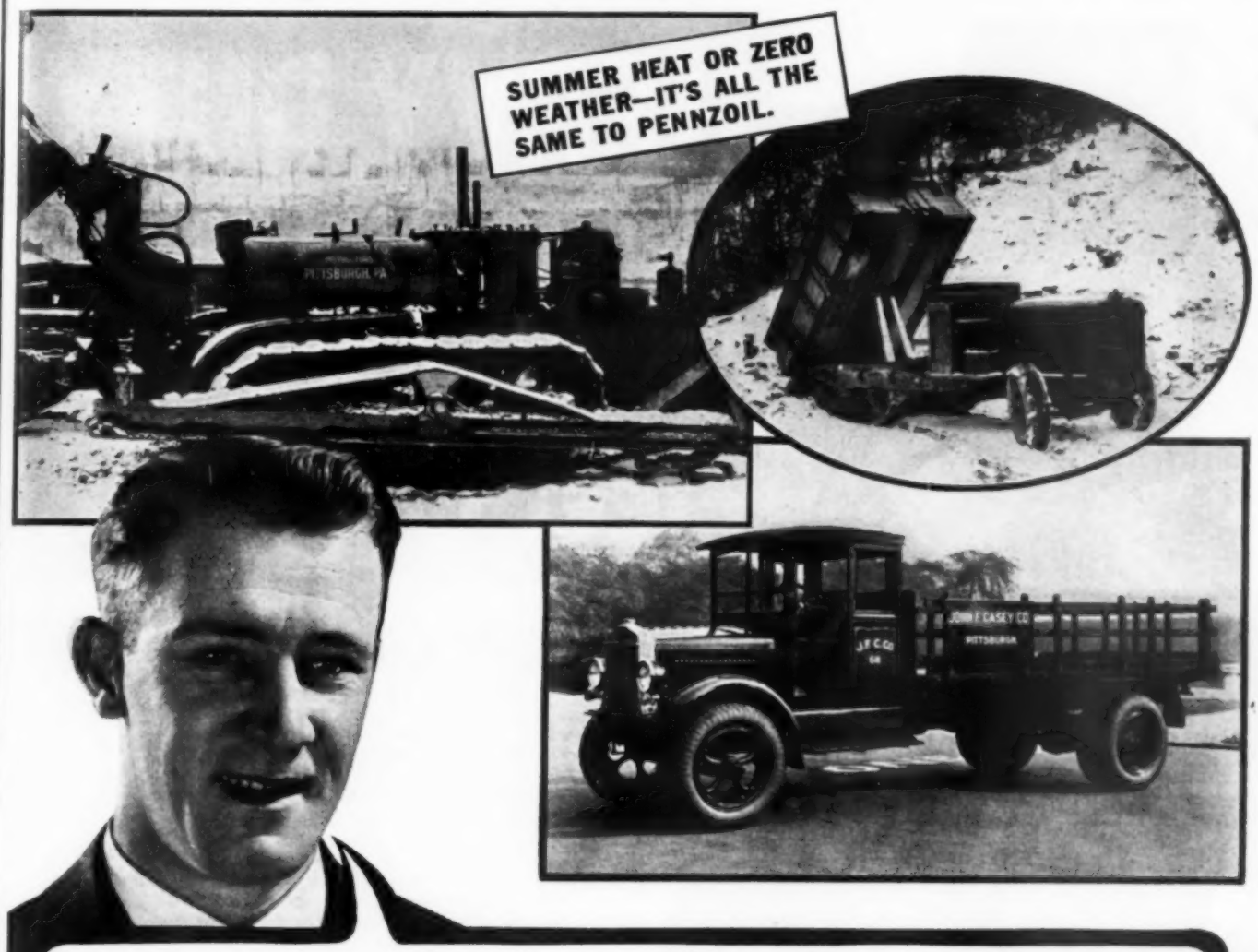
STROMBERG CARBURETORS

A BENDIX PRODUCT

Say "I saw it in FLEET OWNER"—It Helps!



PENNZOIL KEEPS THIS EQUIPMENT ON THE JOB

GIVES PERFECT SATISFACTION FOR THE JOHN F. CASEY CO., OF PITTSBURGH, PA.

BIG JOBS. Heavy duty equipment. A weak oil hasn't a chance here! But PENNZOIL can "take it." Protects the costly equipment of the John F. Casey Company of Pittsburgh. Keeps trucks, tractors, power shovels, graders on the job. Ready for action—summer or winter.

No wonder this big construction company uses PENNZOIL exclusively . . . not only for road equipment, but for *all* lubricating jobs in the repair and machine shops as well.

Saves on Gas

Hundreds of fleet owners report substantial savings after switching to PENNZOIL. Savings in oil consumption . . . in maintenance and replacement . . . in actual gasoline costs.

So if you've been using plain oil in your trucks, you'll be surprised at the difference that PENNZOIL makes. With PENNZOIL, all non-lubricating elements are removed. Gas-eating "engine-drag" is reduced remarkably, allowing motors to develop more power, more revolutions per minute.

100% Pure Pennsylvania
PENNZOIL
Safe Lubrication

Member Pennsylvania Grade Crude Oil Association, Permit No. 2

Get All the Facts

It won't cost you a penny to learn more about PENNZOIL . . . the oil that's saving money for fleet owners all over the country. So why not give it a chance to do the same for you? Mail the coupon below for full information.

THE PENNZOIL COMPANY

NRA CODE

Executive Offices: Oil City, Pa. Los Angeles, Calif., British-American Oil Co., Ltd., Canada.

THE PENNZOIL CO.,
Dept. B-8, Oil City, Pa.
Please send me information about how Tough-Film PENNZOIL is cutting operating costs for fleet owners.

Name.....

Address.....

City.....State.....

Say "I saw it in FLEET OWNER"—It Helps!

5 HEAVY DUTY Motor Parts for Fleet Operators

THOMPSON "S" VALVES
Known to automotive engineers as the finest all steel valves made. Combine the maximum in heat resistance, wear and sealing efficiency. Standard equipment in leading cars, trucks and tractors, and practically all American-built aviation engines.

GRAPHITED VALVE GUIDES
Valve sticking or sluggish action caused by failure of oil from crank case to get to upper part of guide is eliminated by Thompson Graphited Valve Guides. Filled with compressed graphite compound, they provide lasting lubrication for entire bearing surface of the guide, independent of oil in crank-case.

DURACROME VALVE SEATS
Used by Chrysler, Plymouth, Dodge, Lycoming, Waukesha, Etc. Withstand highest engine temperatures. Eliminate exhaust valve "pick-up," and block seat distortion. Guarantee an absolutely gas tight seal, maximum power, and fuel economy. Postpone valve grinding 30,000 miles and more.

CHROME-PLATED PISTON PINS
Because of chromium's low coefficient of friction, extreme hardness, and resistance to pitting and corrosion in the engine, Thompson Chrome-Plated Piston Pins wear much longer than lapped finished pins. Sold in perfectly matched sets.

TIN-PLATED PISTONS
Will lower maintenance costs and greatly increase mileage for piston and cylinder walls. Can be fitted with half the regular clearances and still not bind or score. Permit immediate engine operation at practically full speed and power.

THOMPSON PRODUCTS, INCORPORATED
GENERAL OFFICES: CLEVELAND, OHIO, U. S. A.
FACTORIES: CLEVELAND AND DETROIT

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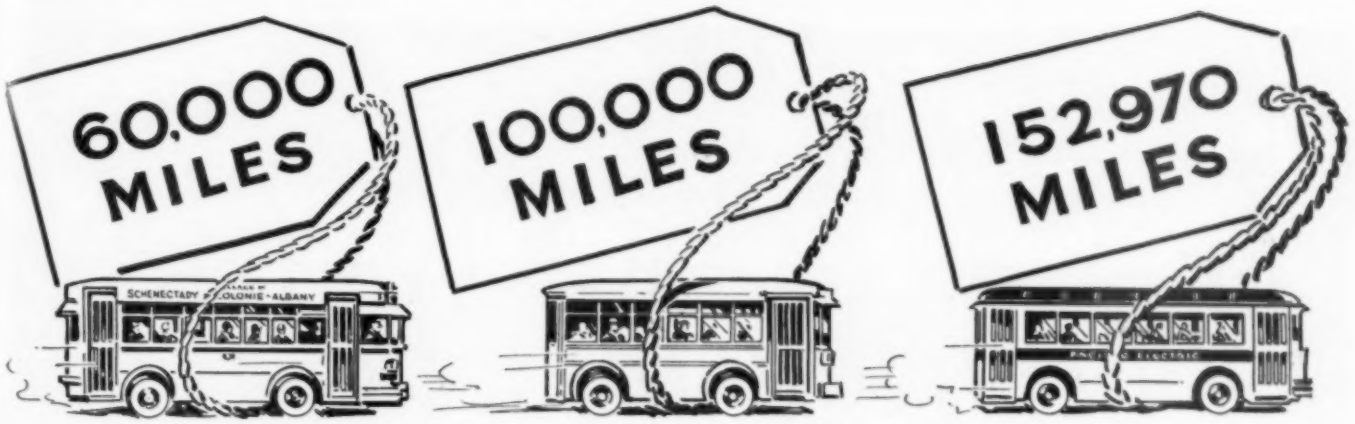


...Typical of the Big-Figure Mileage that follows the adoption of J-M Brake Blocks!

60,000 miles on Schenectady Railway Co.'s 40-passenger models . . . 100,000 miles on the same company's 20's . . . 152,970 miles on Pasadena Electric Railway's 24's . . . and J-M Brake Blocks still on the job, good for many miles more.

But let's look beyond the mileage figures. Consider *operating conditions*. The Schenectady Company's 40's have a tough run. Fast schedules, high speeds on the open highway, much congested city driving.

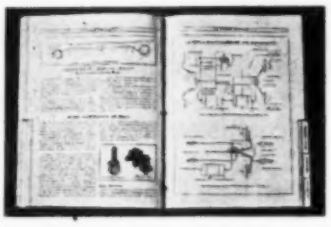
Previous brake blocks gave plenty of trouble; had to be replaced at 12,000 miles. After turning in 60,000 miles, the J-M Blocks were still going strong.

Consider *performance*. Take the Pacific Electric Railway's ten 24-passenger coaches. The mileage registered by J-M Blocks has been virtually trouble-free mileage. Through all these 152,970 miles, J-M Brake Blocks have functioned smoothly, safely and dependably at all times, under all conditions. And they'll go on doing just that for some time to come.

If *you* are not entirely satisfied with brake performance, we urge you to accept the coöperation of our engineers. No obligation. And we may be able to help you build up mileage, and reduce maintenance.

• • •

And let us send you a copy of the J-M Brake Reliner's Manual, described at lower left. Free. Mail the coupon.



You Need This FREE BOOK

First aid for ailing brakes, the J-M Brake Reliner's Manual is crammed with facts on relining, adjusting, trouble-shooting.

124 pages, copiously illustrated with photographs, drawings, diagrams. Stoutly bound to withstand hard, frequent use. Free to bus owners and operators. Mail the coupon.

...And the performance of J-M Brake Linings is equally outstanding

In 1932, the Missouri Pacific Transportation Company, operating in eight states, authorized a J-M Brake Survey. Standardized on J-M Brake Linings. And today their brakes are notably safe and dependable, their brake mileage excellent.

JM Johns-Manville BRAKE LININGS

JOHNS-MANVILLE, 22 East 40th Street, New York City

Check Service Desired

☐ Send us a free copy of the J-M Brake Reliner's Manual.
☐ You may arrange for a J-M Brake Survey.

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Address_____

City_____ State_____

FO-10-34

Say "I saw it in FLEET OWNER"—It Helps!

You can cut costs

. . . and great saving in fuel cost . . .

Save Money With GREATER ECONOMY

STOP WASTE!

How often you hear it!

CUTS COSTS

The most miles on the least fuel

Save $500 Per Truck Per Year

DEFLATE COSTS

SAVES TIME AND MONEY

Lowest Cost

YOU SAVE MONEY

Cuts the Cost

cut costs

REDUCE MAINTENANCE COSTS

ECONOMY

LOW MILEAGE COSTS

SAVE

More Mileage

Cuts Maintenance

ECONOMY—lower cost per mile—is the watchword of the fleet owner.

Consequently the manufacturers of every product for use in this important industry build their products to save the fleet owner money.

But you can't expect to get the greatest economy without Motor Tune-Up at regular intervals.

Realizing this, we have prepared a series of Motor Tune-Up Charts for all models of Carter-equipped cars and trucks to help you do this work quickly and accurately. They're free. Write for them today.

ECONOMY

FAR MORE ECONOMICAL

CARTER CARBURETOR CORPORATION

2834-52 North Spring Avenue • • St. Louis

Division of AMERICAN CAR AND FOUNDRY COMPANY

VOL. 13
NO. 4

FLEET OWNER

OCTOBER
1934

DEVOTED TO THE BETTER OPERATION AND MAINTENANCE OF TRUCK, TRAILER, BUS, TAXICAB, PASSENGER CAR, AND ALL AUTOMOTIVE FLEETS.

Stripping *the* Thread » »

(The Editor's Column)

WHAT PRICE EFFICIENCY?

● On many occasions an "industrial engineer" or other type of brass hat is called in to analyze the operation, maintenance and cost set-up of an automotive fleet . . . Sometimes the "super" is embarrassed; sometimes not. In some cases these efficiency engineers are like the famous welsh rarebit—not welsh and not rabbitt. . . . Early this year a mechanical engineer undertook to analyze the set-up of a well-known New England newspaper fleet, the analysis to be presented to a leading university in the same locality . . . Unlike many others, this particular engineer did a very good job and when we got wind of it, we took immediate steps to obtain publication rights to his findings and recommendations . . . Of course, there are certain thoughts contained therein, to which you (and we) cannot wholeheartedly subscribe. But, as a whole, the analysis is both interesting and valuable and we've divided it up into several articles, the first of which appears on page 14 of this issue . . . You, too, can become a cost-analyst, as the correspondence school ads would say. But, seriously, we believe you'll find lots of good meat in these articles. Perhaps, some time in the future, you can make a similar analysis of your own set-up and save the cost of outside assistance. It *can* be done.

●

SPEEDOMETERS FOR MOTORS

● After purchasing a new truck, many operators will send it out on its predecessor's usual run, with instructions to "drive it slowly for the first 500 miles, then change the oil and see what she will do." We have never tried to ascertain or recommend any proper running-in period. The fallacy of the 500-mile speedometer reading (or make it 1,000 if you will) was brought home to us recently when an operator purchased two new trucks of the same model and make, and sent them out on the road. One was used in inter-city work, where stops were few and far between; the other in local door-to-door work, where the roads were rough, and you travelled as much in the up-and-down directions as you did forward. Both trucks were given the same instructions as quoted above. When the speedometers of both trucks reached the 500-mile mark, one had done three times as much work as the other, so far as engine power output is concerned, to say nothing of total revolutions. Here is where the tachometer (revolution counter) would be found useful, to say nothing of its value in enabling the proper determination of engine overhauls, in place of on a mileage basis, as is now generally being done. Since there is such a difference in total engine revolutions per mile in the various sizes of trucks and buses, and such a difference in operating conditions, does not the mileage method seem somewhat ridiculous? This subject has been brought up before; some operators have been able to equip with engine tachometers. Those that show total revolutions would seem to be more useful than those showing r.p.m. and it is somewhat surprising that more trucks are not so equipped. We believe that this is *one* "gadget" that fleet operators would welcome. But don't ask us at how many revolutions an engine can be considered "broken in." That's a job for the engineers to figure out. We'll get it for you, if you want it, however.

●

RE RUBBER FENDERS

● Our note on rubber fenders, appearing on page 36 of last month's issue, has brought forth a letter from Will Fageol enclosing a patent-office circular dated September, 1931, which indicates that rubber fenders are not beyond the realm of possibility. If you are interested he will be glad to send you the dope. Write him care of Twin Coach, Kent, Ohio.

WAVING TARPS

● If your tarpaulin expense is worrying you; if ripped and torn canvas covers keep you awake nights, check up on your drivers' habits. If you don't use them, this paragraph will not interest you. On a recent 500-mile run, a count was kept, and exactly 56% of the trucks we met (none passed us, of course) had loose tarpaulins, improperly tied down or not tied down at all. Those that were lashed in seamanlike fashion looked as sound as the proverbial Bank of England; those that were carelessly fastened were ripped, torn and had eyelets pulled out or no eyelets that could be observed. While a waving tarp on a fast-moving truck is bound to attract attention, it's also sure to run up your maintenance costs. If they *must* have something to wave, give them a nice flag. One with 48 stars and 13 stripes will do; that is, if the stripes are red and white and the stars are white on a blue field. It's even better to take time out and fold up truck covers in fair weather, than to allow them to flap vigorously in the air currents created by a fast-moving truck. Just our way of giving you a little advice.

●

AND STILL THEY DO IT

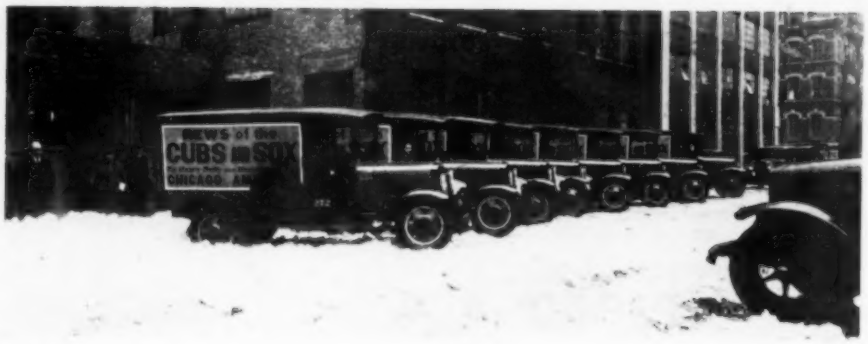
● "We've only got four tons on this 1½-tonner; we can get away with another ton this time." (P. S. He broke the axle.)

●

H. Clay Fischer
Editor

●

Analyzing a Typical Fleet Operation



This analysis represents a very complete survey of a Newspaper Delivery Fleet using vehicles of the type shown above. You will find it very thorough and perhaps can make use of some of the recommendations in your own operation. We are not permitted to reveal the identity of the operation analyzed, so to make it somewhat confusing, we have selected the above photo of a newspaper fleet, giving baseball news with two feet of snow on the ground. The trucks shown above do NOT belong to the fleet operation analyzed.—Editor.

By Everett J. Gribbons, M. E.

● (EDITOR'S NOTE: *The author of this article recently completed a thesis on the subject of Fleet Operation and Maintenance, which outlined in detail the operation, maintenance and cost accounting system in use by a New England newspaper fleet. In addition to presenting the experience data, he subsequently made an analysis, showed comparisons, pointed out probable savings and made specific and general recommendations, just as any industrial engineer or efficiency expert might do. We are particularly fortunate in having the opportunity of reproducing some of these data, although the name of the fleet may not be revealed. Therefore, let us refer to it as "The Combined Publishing Company." You'll find this and subsequent articles on the subject of intense interest, we believe.—H. C. F.*)

●

MORNING, evening and Sunday newspapers are published by The Combined Publishing Company, with a total circulation in excess of 100,000. These are the leading newspapers in the territory and they are under the leadership of a conservative, yet progressive management.

Since newspaper delivery is somewhat different than that of most other commodities, "service" may be termed the watchword in this fleet, and even the severest weather conditions must not interrupt delivery. It is the Company's proud boast that its crew of crack drivers will get through with the papers when most other forms of transportation are tied up. This service often involves covering the same routes two or three times, especially with the evening papers, in order that all sections of the city will have the latest news at all times.

The Combined Publishing Company owns and operates its own delivery fleet, which consists of 17 trucks, 7 passenger cars and one tow-car, the ages of which range from one to five years. The vehicles are typical fast, light, newspaper trucks, and include Fords, Chevrolets, Dodges, G.M.C.'s, Reos and Whites. (See Schedule A.)

The trucks are housed in a private, rented garage located about a half mile from the plant and main office, under the supervision of the assistant business manager who is stationed at the main office. The coupes and sedans, with the exception of two that are used by the editorial department, are used by circulation roadmen, who collect accounts and supervise designated territories. The editorial cars are housed separately from the fleet proper in a garage close to the editorial rooms. Cost records are not kept of these two cars and they will not be included in any of the following data.

SCHEDULE A

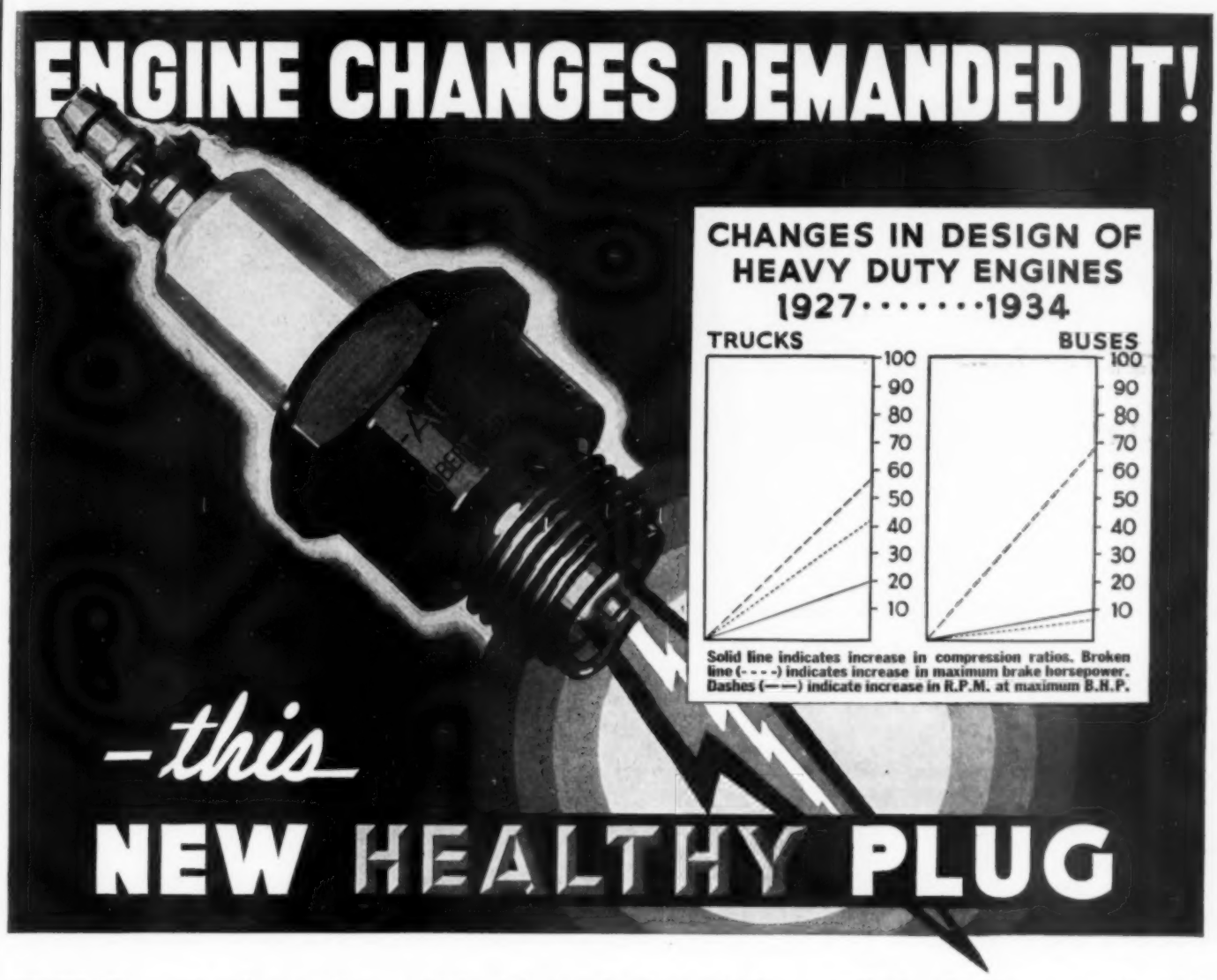
VEHICLES IN THE FLEET

Car No.	Make and Model	Year
1	Dodge F 31	1931
2	White B 60 (Tow)	1930
3	Reo FA	1929
4	Reo FA	1929
5	White 66	1931
6	Reo DA	1930
7	Reo DF	1930
8	Ford B	1932
9	Reo FEX	1932
10	Ford A Coupe	1928
11	Ford B Coupe	1932
12	Ford B Coach	1932
14	Reo 2D	1933
15	Ford B Coach	1932
16	Ford B Coach	1932
17	Reo FA	1930
18	Reo DFX	1932
19	Ford B Coupe	1932
21	GMC T-19A	1931
22	Reo DF	1931
23	Reo DF	1931
24	Inter. A2	1931
25	Reo DF	1931
26	Reo DF	1931
27	Chev. Coupe	1931

This fleet operates under ideal conditions, so far as the prospects of obtaining low cost-per-mile figures are concerned, for the trucks are driven by men who are hired primarily as chauffeurs. Unlike bakery companies and others that use driver-salesmen, The Combined Publishing Company can hire men almost entirely for their driving ability. In addition, the trucks cover high yearly mileages over good roads, which should result in a low cost-per-mile for all running charges.

Operating records covering the cost of gasoline, oil, repairs, tires, rent and labor are kept for each machine and for the fleet as a whole. Statistical data is computed at yearly intervals and covers the cost per mile of each item. The value of these data is questionable, however, as original equipment tires are not included in the tire account and labor is distributed equally among all machines, re-

ENGINE CHANGES DEMANDED IT!



—this NEW HEALTHY PLUG

FEWER spark plug replacements! Longer spark plug life! Reduced risk of road failures and balled up schedules! Lower servicing and maintenance costs.

These are the new benefits which truck and bus operators enjoy with the new Pyro-Action Spark Plug . . . . designed by Robert Bosch A.-G., world's oldest plug manufacturer.

This new plug has been developed especially for the current trend toward hotter engines, indicated in the chart above.

The insulator of the new Pyro-Action Plug, made of a newly discovered synthetic composition, has the stamina to resist cracking at high temperatures.

The electrodes are made of a special alloy with unmatched ability to resist corrosion.

The center electrode is oversize—compare it with any other! The ground electrode is so constructed that there is no danger of breaking it off when adjusting the spark gap.

The heat range of this new plug is so much wider that there is a radical reduction in number of plug types. This simplifies your whole spark plug problem.

Think what this new Pyro-Action Plug can contribute to the economical and dependable operation of your fleet. Test them yourself. Ask our nearest representative to recommend a set of correct Pyro-Action Spark Plugs for one or more buses or trucks. Compare results, on a basis of cost-per-mile, with any other plugs you have ever used!

UNITED AMERICAN BOSCH CORP.
Springfield, Mass. - - New York, Chicago, Detroit

Listen in: American-Bosch Radio Explorers Club, WJZ-NBC, every Sunday afternoon.

The American-Bosch organization has always taken pride in creating, designing, building and selling only products that are superior to those commonly in use. Proven leaders in their fields, they are built up to a high standard of quality and not down to a price.

Pyro-Action

the HEALTHY Spark Plugs

LICENSE ROBERT BOSCH A.-G.

OPERATION *and* MAINTENANCE ANALYZED *(Continued)*

(Suggested Form)

DRIVER'S TROUBLE REPORT NO. .....

Car No. ..... **Driver** ..... **Date** .....

CHECK ITEMS NOT IN PROPER WORKING CONDITION:

Engine	Body & Cab	Transmission ....
Clutch	Doors	Oil Pump .....
Starter	Fenders	Water Pump ....
Steering	Shock Abs.	Ammeter .....
Tires	Springs	Lights .....

GIVE DETAILS:

Note: Enter Number of Trouble Report on your Driver's Weekly Report.

Here's the proposed Driver's Report form, to be used instead of the "ordinary sheet of paper" that is now the only means of reporting vehicle condition. Note that the number of this report is to be entered on the Driver's Weekly Report, shown below.

gardless of mileage or actual work done. (More will be said later about the cost-keeping system—ED.)

Maintenance is in charge of a working foreman who is assisted by two repair men; these three men work days, and do all general repair work. In addition, two men are employed nights, the week being split between them, for duties such as greasing, polishing, dispensing gasoline and going out on tow jobs. One 1½-ton truck, in addition to the tow-truck, is kept in the garage at all times for emergency work. Most road service calls, however, are cared for with this spare truck.

The truck drivers, with the exception of four men who work on the afternoon editions only, work two shifts week days to deliver morning and evening papers, and one shift Sunday. All men are installed on definite routes and drive the same trucks, under all normal conditions.

The rented garage, mentioned in our fourth paragraph, is located about a half mile from the plant and main office. It is well equipped with such tools and equipment as wrenches, reamers, taps, dies, electric drill, hydraulic jacks, air compressor, oil reclaimer, tire mounting machine, paint-room with power spraying equipment, wash stand and various special tools needed for the particular makes of cars, such as wheel pullers, valve lifters, etc. Machine tools, such as lathes, are not used, and no skilled machinists are employed.

The assistant business manager, located at the main office, is in charge of the fleet. Under him is the working foreman and two mechanics and two polishers. The garage foreman and the mechanics do all general repair work. Jobs involving special knowledge, special tools and equipment, such as boring and grinding of cylinder blocks, repairs to batteries and electrical equipment, etc., are sent out to be done by specialists.

The three mechanics work days, and are employed for a 40-hour week. The other two men work nights, the work being arranged so that only one man is on duty at a time between the hours of 5 p. m. and 7 a. m. In other words, each man works a portion of the week to get in 40 hours. The duties of the latter two men consist of greasing, changing oil, repairing tires and chains, polishing coupes and sedans, going out on tow or service jobs and other miscellaneous duties.

As previously stated, the fleet of trucks is used for delivering all different editions of the papers, and, so far as possible, each truck is driven by the same driver at all times. Trucks used for morning and Sunday newspapers are taken from the garage at about 3 a. m., and are returned by 7 a. m. All but five trucks are used weekday mornings, and all but two are used on Sundays; these are available then, as spare trucks.

Drivers report for the afternoon editions at 1 p. m. and are finished for the day by 5:30 p. m. All trucks, with the exception of one 1½-ton truck, are used for delivering the afternoon and evening editions.

The coupes and sedans used for road work are taken from the garage at about 8:30 a. m. and, usually, are not returned until after 6 p. m.

The fleet, therefore, is available for repair work between the hours of 7 a. m. and 1 p. m. The repairmen do the general repair work

DRIVER'S WEEKLY REPORT

Car No. ..... **Driver** ..... **Week Beginning Monday** **1934**

I have filled out Trouble Reports Nos. .....
(Note: All entries MUST be made PERSONALLY by driver.)

Day		Leave Garage	Return Garage	Gals. Gas	Qts. Oil	Speedometer Reading	Daily Mileage	Driver's Signature
Mon.	A.M.							
	P.M.							
Tues.	A.M.							
	P.M.							
Wed.	A.M.							
	P.M.							
Thur.	A.M.							
	P.M.							
Fri.	A.M.							
	P.M.							
Sat.	A.M.							
	P.M.							
Sun.	A.M.							
	P.M.							
Totals								

Miles per Gal. of Gas = Total Miles / Total Gas = ____

Miles per Qt. of Oil = Total Miles / Total Oil = ____

Note: **Truck Drivers:** Fill gas tank after returning from Sunday trip. Also record mileage.

Roadmen: Fill gas tank after last trip of week. Also record mileage.

Although The Combined Publishing Company does not at present have daily Driver's Report forms, they are using this very complete weekly report. This form serves several purposes, as you will note, including the determination of gasoline and oil mileages per vehicle.

BETTER OIL CONTROL..LESS CARBON CLOGGING

VASTLY LONGER LIFE

Pedrick

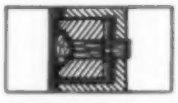
HEAT-SHAPED

PATENT APPLIED FOR

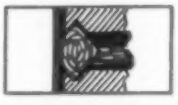
DEEP CHANNEL
oil control ring

It's the *Shape* and *Depth* of the Continuous Channel

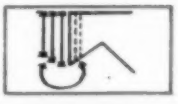
These are the outstanding features of the new PEDRICK Deep Channel oil control ring. It is the *shape* and the *depth* of the continuous channel, plus the use of round drilled holes, instead of elongated slots, that give this ring these definite superiorities.



1 The sharp scraping edges cut into the oil film on both the up and down strokes of the piston.

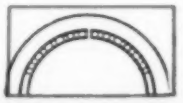


2 The shape of the channel creates constant turbulence of the oil, preventing carbon accumulation—delaying clogging.

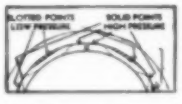


3 The wear on the face of the ring reduces the face area, due to the undercut feature of the channel—tending to maintain unit pressure and compensating for loss of tension caused by wear. This feature more than doubles the effective life of the ring.

4 The channel is much deeper than in the old style channel oil-control rings. Due to its *depth* and *capacity*, it collects the surplus oil *quickly* from the cylinder wall.

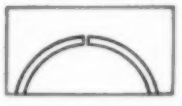


5 Round holes, spaced closely and evenly around the ring are drilled without a trace of distortion of the shape of the ring, whereas, it is not possible to saw elongated slots in such a light section without permanent distortion. (See Fig. 6).

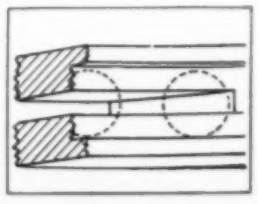


6 Where elongated slots are used, the long, unsupported sections that are slotted are low pressure points against the cylinder wall, while the short solid sections between the slots are high pressure points against the cylinder wall.

7 The use of elongated slots results also in the distortion of rings sideways. The sawing of the slots bulges the metal sideways. Slotted rings thus wear unevenly on the sides.



8 The drilling of the round holes leaves the deep-channel ring perfectly flat on the sides.



9 The diameter of the round holes exceeds the width of the slots that would be used in a ring of the same size. Round holes, therefore, require longer to become clogged with carbon.

Write Today for Complete Information

Wilkening Manufacturing Co.
Philadelphia

NRA

Say "I saw it in FLEET OWNER"—It Helps!

A "HOW-TO-DO-IT" ARTICLE *(Continued)*

during the forenoon; afternoons are spent cleaning the garage and doing other odd jobs, including any repair work that may develop due to trouble on the road. However, if a major repair job is encountered, the vehicle may be worked on all day, inasmuch as the spare truck can then be utilized on the route of said vehicle.

When trouble develops in a truck, the driver writes a note, explaining the difficulty, on an ordinary sheet of paper. No record of the note is kept or sent to the main office.

Each driver is responsible for washing and polishing his own truck. For the most part, the truck drivers take a personal pride in keeping their vehicles well polished and the fleet is exceptionally good-looking.

During the past three years, this fleet has been entered in the National Safety Council Commercial Fleet Contests. The resulting intensive safety campaign has materially reduced the accident frequency of this fleet, and a previously poor record has been supplanted by a very good record.

Maintenance Recommendations: The author is not particularly concerned with the actual mechanics of performing repair work, but a study of alternative routine and control methods will no doubt be of some value. The problem will be first discussed (Alternative I) on the premise that no radical changes are to be made and that the fleet is to be maintained in the present garage with the present crew.

Alternative I: The system of making trouble reports does not seem satisfactory. Under the present system, cases may arise where repairs are neglected or delayed and since no trouble reports are sent to the main office, there is no check on them. The author favors a standard form of trouble report to be made out in duplicate; one copy to be forwarded to the main office immediately and the other copy to be retained at the garage until the necessary work is done. The second copy may also be sent to the general office later for comparison and check.

If such a form is made out in duplicate, it will center responsibility when a question arises as to whether or not a report was submitted, that could have prevented later serious consequences; this will also tend to cause repairs to be made immediately. A proposed form is shown on page 16.

It is also recommended that these trouble reports be numbered consecutively; the number is necessary in order that either or both copies will not be discarded before the necessary work is done. A driver's *weekly* report is now being used (see page 16) and the numbers of any trouble reports that he has made out could be entered thereon. In this manner, any missing trouble reports can be quickly identified, and a positive check thus assured.

There really is no necessity for listing all of the items that we have shown in the sample trouble report. However, they may serve as a reminder to the driver as he fills out the report, and his attention may thus be focused on trouble that would otherwise be neglected.

The present practice of correcting all reported troubles during the forenoon should be continued, in order to have the fleet ready for afternoon service. Under the present routine, the repairmen devote their afternoons to cleaning the garage and doing miscellaneous duties. A routine should be set up that would utilize the time of these men to the fullest extent, for, executives agree that if a man is kept busy during working hours he does a better job, and, at the end of the day he has that feeling of satisfaction that comes from accomplishment. On the other hand, the "killing" of a few hours each day is apt to inculcate laziness and irresponsibility which may even prevent a man from doing his best when there is actual work to be done.

In this connection, the author suggests a system of preventive maintenance that will keep the men busy and keep the fleet in peak condition. Truck manufacturers and large fleet owners are unanimous in their declaration that preventive maintenance more than pays for itself from a dollars-and-cents standpoint, for, over a period of time, large repair bills are actually avoided by discovering minor troubles and making adjustments before expensive repair jobs develop. In addition, road breakdowns will be avoided, which results in better delivery service.

The preventive maintenance systems previously described in this publication seem to be satisfactory, and the author recommends the installation of such a system at The Combined Publishing Com-

(*Please turn to page* 50)

(Proposed)

PREVENTIVE MAINTENANCE SCHEDULE

Car Numbers	Frequency of Inspection
3, 5, 9, 14, 17, 18, 22	Every 7 Days
7, 8, 21, 23, 25, 26, 11, 12, 19	Every 14 Days
1, 27	Every 21 Days
2, 4, 6, 24, 10	Every 28 Days

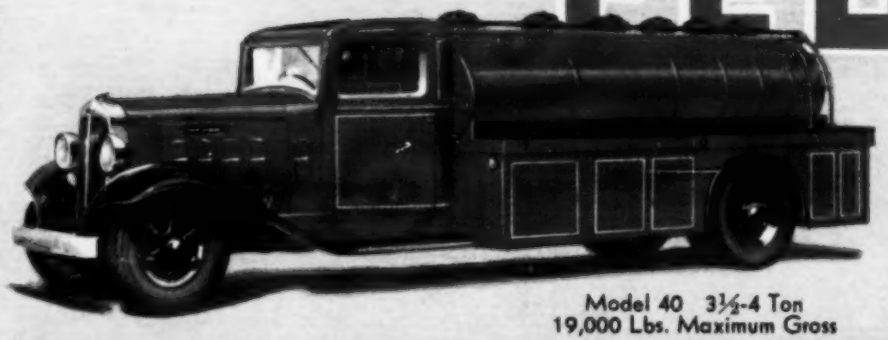
	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
A.M.	5	9	14	17	22	3
P.M.	7	8, 27	21	18	26	1, 19
A.M.	5	9	14	17	22	3
P.M.	4	23	11, 25	18	2, 12	24
A.M.	5	9	14	17	22	3
P.M.	7	8	21	18	26	19
A.M.	5	9	14	17	22	3
P.M.	6	23, 27	11, 25	18	12	1, 10
A.M.	5	9	14	17	22	3
P.M.	7	8	21	18	26	19
A.M.	5	9	14	17	22	3
P.M.	4	23	11, 25	18	12	24
A.M.	5	9	14	17	22	3
P.M.	7	8, 27	21	18	2, 26	1, 19

And here's how our investigator has laid out the preventive maintenance schedule for the fleet of The Combined Publishing Company. Vehicles are scheduled for inspection according to mileages travelled. See text of article for details.

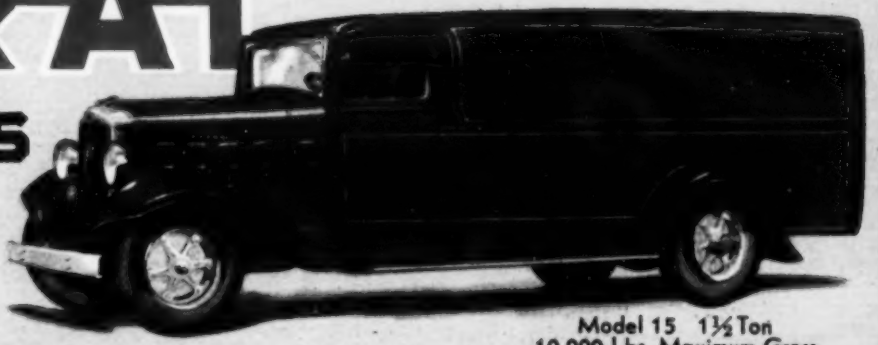
FEDERAL 100% "all-truck construction!"

2½ Ton, Model 25, Equipped with Federal-Built Cab and Box Panel Body

FEDERAL TRUCKS



Model 40 3½-4 Ton
19,000 Lbs. Maximum Gross



Model 15 1½ Ton
10,000 Lbs. Maximum Gross

WHEN you buy a Federal, you're buying a transportation unit that's *100% TRUCK!* Motor, clutch, frame, springs, steering gear, axles, brakes—every integral part has been engineered to provide the extra margin of strength and stamina demanded for truck service; built to take the kind of punishment to which motor trucks are subjected today! ★ There's no mystery about Federal's long life and low-cost-per-mile. . . . It's the kind of service you have a right to expect from

FEDERAL MOTOR TRUCK CO. · DETROIT

any truck—FEDERAL delivers it! ★ There is a Federal chassis . . . 1½ to 7½ tons, 4 and 6 wheelers . . . and a Federal-built cab and body to meet your requirements exactly. ★ Such necessary features as full-floating axle, 6-cylinder 7-bearing truck engine with valve inserts, and hydraulic brakes, are included as standard equipment in every Federal model *at no extra cost.* . . . Get the facts about Federal value . . . and you'll agree that genuine all-truck performance costs no more!

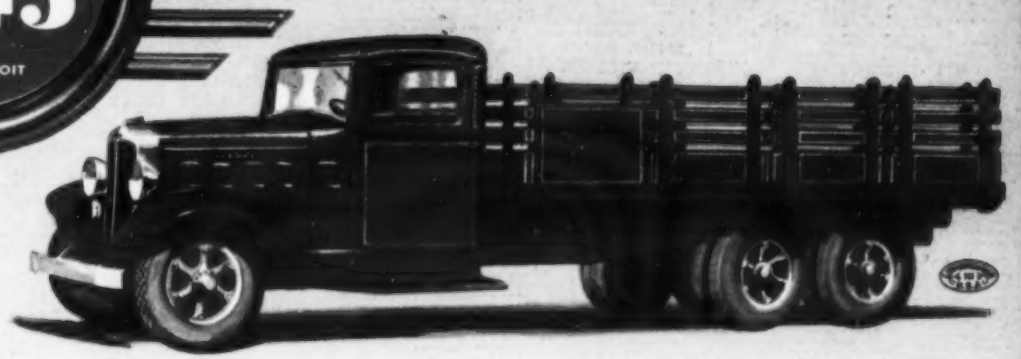
Canadian Factory: Federal Truck Co. of Canada, Ltd., Windsor, Ontario

STANDARD CHASSIS WITH FULL FLOATING REAR AXLE AND HYDRAULIC BRAKES

$645

AND UP
F. O. B. DETROIT

Model 20 2 Ton
12,000 Lbs. Maximum Gross



Model 21 3 Ton 6 Wheeler
15,000 Lbs. Maximum Gross

An Operator's Experience *with* Refrigeration

By H. Clay Fischer,
Editor, FLEET OWNER

AN interesting example of modern refrigerated transportation service is found in the operation of the fleet of The Adams Transfer & Storage Company in conjunction with Adams Union Truck Terminals, Kansas City, Mo.

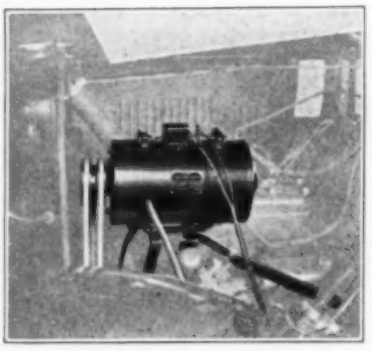
The Adams System, through its own lines and common carrier connections, serves more than 2,000 stations in twelve states on regular schedule. Over this vast territory it probably comes in direct contact with a larger variety of business concerns than most lines of business. It maintains a department especially assigned to perishable commodities and marketing service problems.

A large number of these connecting lines also have excellent refrigerator equipment, within a few hours' distance of the Adams Terminals, and the Adams Terminals assume full responsibility for shippers' merchandise from the time it is picked up, until it is delivered, whether over its own lines or in connection with authorized connecting lines.

The Adams Company has made a careful study of the refrigerated transportation requirements of its shippers and quickly learned that speed in pre-cooling, forced circulation and controlled temperatures in transit are essential to the proper transportation of perishable merchandise. Their investigation proved to them that mechanical refrigeration of trucks, as in other industries, would be particularly suitable for their own transportation service.

Right after announcing the inauguration of this service in November of last year, a number of tractors and semi-trailers were acquired and especially equipped to render mechanically refrigerated service. One of these vehicles, typical of the installation, is shown at the head of this article. Of particular interest to the readers of this publication, no doubt, are the methods utilized to maintain controlled temperatures.

A new type of constant-voltage generator, such as is also illustrated on this page, helped to solve the problem of furnishing a compact, dependable electric power supply and permitted the installation of mechanical refrigerating units that could be operated while the truck was rolling on the highways, as well as while it was being loaded at the terminals.



Type of generator which has solved the problem of providing electric current to operate the refrigerating unit while the trucks are on the road. It is really two generators in one, since it provides current output of both 6-volts and 115-volts.

Each trailer was equipped with a 1½ h.p., twin-cylinder refrigerating compressor, driven by a specially designed dual electric motor, all of which were mounted in a compartment underneath the body of the trailer. Under the hood of each tractor, one of the special constant-voltage generators was mounted, driven by rubber belts, as shown in the illustration.

These generators produce a constant voltage of 115-volts at variable speeds and deliver as high as 1,500 watts, and are really two generators in one, inasmuch as they consist of two generators built on the same frame. Both armatures are located on the one shaft, and operate in independent fields.

The regulating generator is of the conventional third-brush type, delivering 6-volt current to the battery. The power generator, supplied in the capacity required, supplies the refrigerating unit with current. Voltage for the latter is said to be constant, regardless of the speed of the truck.

The refrigerating compressor, mounted in a special compartment under the body of the trailer, is not affected by the jar, sway and vibration of the truck, and in conjunction with a blower type of evaporator, provides a positive cold air circulation throughout the load, as well as a unique method of cooling mixed loads.

Each machine is entirely automatic. A thermostatically-controlled expansion valve regulates the operation of the unit and a second thermostatically-controlled valve automatically governs the temperature of the truck body, which can be set at any predetermined degree.

A thermometer, mounted on the trailer body, and which can be seen by the driver from his tractor cab,

(*Please turn to page* 52)

Building a Streamlined, Welded Bus Body

•

Pacific Coast Operator Fabricates Modern, Streamlined 12-Passenger Job, Using Practically 100% Aluminum Alloys

•

EVERYWHERE in the country, people are rapidly becoming stream-line conscious. Trains and automobiles built on these lines are the curiosities of today, but the common-places of tomorrow.

Two factors have been of prime importance in the development of the stream-line principle: the production of light-weight metals and alloys to a point of commercial practicability; and the use of a method of joining these metals to produce a smooth joint that will be equal to or greater than the old mechanical joints in strength.

Of the metals, aluminum and stainless steel are the leaders, and welding provides the perfect method of joining.

The examples with which the public is most familiar are, of course, the larger production jobs, but smaller concerns have been quick to follow the lead set by the "big fellows."

For instance, in one of the Pacific Coast states a small bus line operator was planning to replace one of his old buses. In talking over the matter with a local welding shop proprietor, he saw the possibility of having a bus made economically, entirely to his own design. The use of aluminum and oxy-acetylene welding in the fabrication of a stream-line body would assure him a bus superior in many ways to any ready-made bus he could buy, he believed. The order was promptly given.

This picture was taken as the welded, aluminized motor coach neared completion. Framework of body, as well as sheeting, are of strong aluminum alloys.

Completed, painted and ready for the road. Note how the color scheme gives the impression of greater length and seems to decrease the apparent height.

The body framework was built on a 1½-ton Reo chassis with a special transmission, high gear ratio, and rubber motor mounting. This framework was constructed of aluminum channels, nearly all joints being welded. This was then covered with aluminum sheets securely oxwelded together. Many small pieces of interior trim were also welded in order to give a smooth, more finished appearance.

While practically the entire body was constructed of aluminum, there were a few small parts made from welded steel tubing. Such parts included door controls, cups for seat legs, gasolene tank caps, bumpers, windshield frames, and hardware for the doors.

There were approximately 55 linear ft. of welded joints in the exterior of the body, and about 28 ft. on the interior. These figures do not include the moldings for the window frames which were also made of welded aluminum.

All of the welded joints were ground down and hammered, so that the finished seams were impossible to detect, and due to the hammering and the special welding rod used, the resulting joints possess great strength.

When the job was completed, the weight of the aluminum body complete with all equipment was found to be only 1,440 lb., as compared with an estimated weight of 6,000 lb. for a similar job constructed of wood and steel.

The bus carries 12 passengers, and has an express and baggage compartment in the rear with a capacity of 3,000 lb. This extra payload would have been impossible without such a reduction in body weight as was effected by the use of oxwelded aluminum.

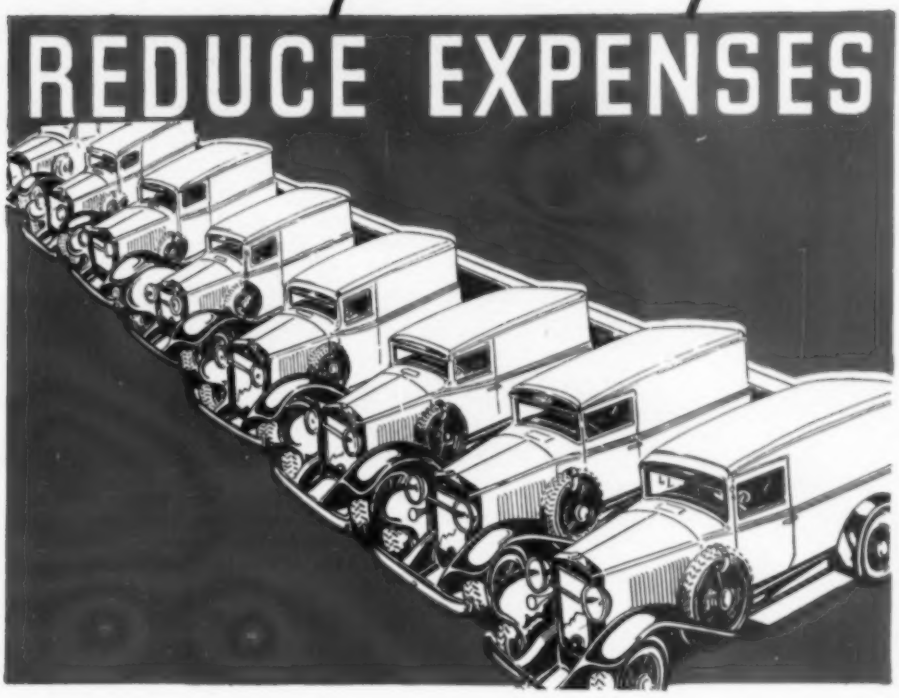
The economical cruising speed has been found to be 61 miles per hr., and wind tunnel tests indicate that the special stream-line shape adds 15 miles per hr. to the top speed. This type of design, which was made possible by means of welded joints, also keeps the body cleaner, as the air flow is smooth along the entire length of the body.

Service tests on the completed coach indicated savings of over 20 per cent in total operating costs. The company officials are more than pleased with their first experiment in the field of stream-lines and say, "It is saving us over $5 per day in gasoline alone."

Undoubtedly there are many other operators who have effected similar economies through the use of strong aluminum alloys in body construction. The Editor would be glad to hear about them.

Tungar Battery Chargers

REDUCE EXPENSES



G-E Tungar Battery Chargers eliminate run-down car-batteries. For over 17 years, fleet owners of trucks, buses and cars have used Tungars to assure trouble-free batteries. Fleets are more efficient. Maintenance costs are reduced.

For larger fleet owners, the "6-12" gives economical one day charging. This is a "full-wave" Tungar, charges six batteries at the 12-amp. rate or twelve batteries at 6-amp. rate.

The Six-Battery Tungar charges 1 to 6 batteries at the full 6-amp. rate. Many improvements have been added. Initial cost is low. Operation is very economical.

The new 5-amp. Mercury Tungar charges one battery at full 5 amp. rate. For the small fleet owner, this Tungar assures fully charged batteries at low cost. Wiring accessories furnished permit charger to be connected to battery through outlet on dash panel.

For further information on Tungar's complete line, write Section A-2210, Merchandise Department, General Electric Company, Bridgeport, Connecticut.

FOR BEST RESULTS ALWAYS USE GENUINE TUNGAR BULBS

Please send complete Tungar information:

Name.....

Address.....

City..... State.....

GENERAL ELECTRIC

AUTOMOTIVE PRODUCTS

MERCHANDISE DEPARTMENT, GENERAL ELECTRIC COMPANY, BRIDGEPORT, CONNECTICUT

Say "I saw it in FLEET OWNER"—It Helps!

"New Trucks for Old" Modernized This Fleet

Here's an even dozen of the old Internationals that were in service since 1916 and were recently traded in, en masse, for the nice-looking fleet with insulated bakery bodies, shown below. Mr. Papendick was a firm believer in the principle of standardization, it would seem. Twenty-seven, in all, were turned in.

And here is the new fleet of thirty-three (count 'em) bakery units that would do any baker proud. In the following interesting article you'll read more about the operation and maintenance of this fleet and their experience with insulated bodies for bread delivery. The advertising value has not been overlooked, you'll note.

●

By Edwin A. Hunger

THE Papendick Bakery Company has had an interesting experience with motor trucks. Recently, in a most spectacular manner, this big St. Louis baking concern traded in its entire fleet, with the exception of three units, and replaced it with a fleet of thirty-three new Model A-2 1½-ton Internationals fitted with attractively-finished insulated bodies.

Back in 1916, G. C. Papendick, president, became sold on the idea of standardizing his delivery fleet and began buying all vehicles of the same make. In fact, the first of the trucks which he purchased in 1916 still were operating when his company traded in his old fleet of twenty-seven Internationals for the new models.

As may be expected, the purchase of this big, new fleet of automotive delivery units was an event of considerable interest and importance in the St. Louis motor truck world, and in itself has provided the progressive Papendick Baking Company with a lot of favorable publicity and advertising. An advertisement, 14½ x 14 inches in size, was run by International Harvester Company in the St. Louis *Star* and *Times*, commenting on the unusual new order of trucks and in which considerable space was also devoted to the company's main product, Old Settler bread. The International Harvester Company also prepared a full-page advertisement based upon this order of new trucks, which appeared in five national publications with a total circulation of some six million copies.

Sometimes it gets pretty hot in St. Louis in the summer time, and bakers with old-type bodies hesitate to put bread on the top shelves on long runs because it will dry out too quickly and also lose weight. On the other hand, in the winter, freezing weather may damage the bread on such long runs. With an insulated, fully-enclosed, dustproof body, such as the Papendick Baking Company has adopted for use in its new fleet, bread, of course, is protected both in hot and freezing weather and is delivered fresh and clean, even on the longest runs.

The exterior of each body is of all-metal construction, and between the metal and the composition board with which the interior is fitted, is an air space and a special wool lining ½-inch thick. Each body is 8 feet long, 4½ feet wide, and 4 feet 4 inches high. It is equipped with three decks or shelves and has a capacity of about 1,000 loaves of bread. Swing doors are at the rear and are provided with rubber strips to exclude dust.

Attractively-finished delivery units provide any bakery with one of the best advertising media available. Recently the National Dairy and Food Bureau made a consumer survey in the interests of the ice cream business. One of the questions asked some 86,000 housewives was what type of advertising medium directed their attention to ice cream and caused them to buy. The ice cream truck was listed first.

Certainly, a similar condition should prevail in the baking industry, and the advertising on attractively-finished trucks such as those operated by the Papendick Baking Company must carry real weight with the housewife in making her decision as to what bread and other baking goods she should buy.

The body, hood, and cowl of the new Papendick trucks are painted an attractive light gray; Bucknell gray it is called. The name of the company's chief product, "Old Settler," stands out in special brown log-type letters. The remainder of the advertising message, as shown in one of the illustrations, is in white letters bordered with brown. And then, to add contrast, the fenders are black, and the wheels and chassis are red.

(*Please turn to page* 53)

SKF EQUIPPED
BUILT BY
THE GEAR GRINDING MACH. CO.

An application of the Rzeppa joint in a front axle

RUGGED SKF'S ARE MADE FOR HARD ▼ ▼ ▼ ▼ SERVICE

LOOK OUT! This Marmon-Herrington All-Wheel Drive Truck is coming right at you! And it's coming *smoothly* . . . *speedily* . . . due to the Rzeppa Constant Velocity Universal Joint equipped with SKF-Atlas Balls on the front axle . . . a joint that provides easy steering . . . a unit that finds wide application in both automotive and marine fields! And it may be used to replace other types of joints!

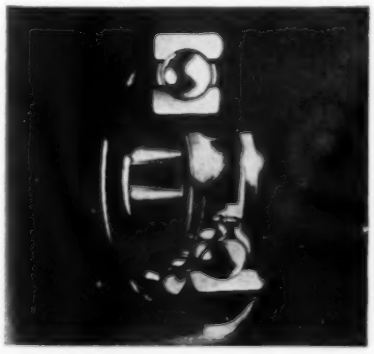
SKF-Atlas Balls are not only used in these Rzeppa universal joints, but they are in all SKF Ball Bearings . . . such as those incorporated in Grico 2-Axle Drives built by The Gear Grinding Machine Co. to replace rear axles on various types of trucks. And SKF Ball Bearings on the propeller shaft, gear shafts and differential of this drive insure rugged service . . . long life . . . extreme flexibility . . . constant precision. Whenever there's a question of bearing performance, there's always a ready answer in SKF! For SKF's perform *indefinitely!*

3276

SKF INDUSTRIES, INC., FRONT STREET AND ERIE AVENUE, PHILADELPHIA, PA.

SKF
Ball and Roller Bearings

● You may buy a bearing as a bargain but try and get a bargain out of using it, for nothing is apt to cost so much as a bearing that cost so little.



Say "I saw it in FLEET OWNER"—It Helps!

Let's Make Every Turn "A Good Turn"

A Frank Discussion of Highway Conditions and the Need for Suitable Turn-Signalling Equipment

By H. Clay Fischer,
Editor, FLEET OWNER

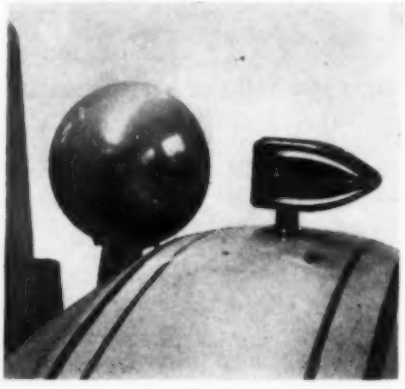
WE are going to the bat for direction-signalling equipment this month, not because we want to see you spend some money, but because we sincerely believe (and most everyone will agree with us) that *any* equipment that makes for greater safety and which will help to prevent accidents, is cheap at any price.

Starting from the beginning, we find that many devices of this kind have come (and gone) on and off the market. We have seen semaphores of all kinds; some excellent factory-made jobs; others crude home-made devices. We have seen illuminated direction signals that would automatically go on and off; some that would flash and some that would blink; some that would produce an audible warning in addition to an illumination. However, it is not our purpose to discuss the merits or shortcomings of any of these. That's the manufacturers' job, and the choosing will be left entirely to your own good judgment. Rather, let us discuss the subject from a safety standpoint, regardless of the make or type of direction-signalling device you may encounter.

The first thought that we want to bring home has to do with legistion or lack of it. There is one type of operator who will fight shy of *any* kind of a safety device, until the law actually compels him to use it. Another type of operator (the sensible type, if you please) investigates the conditions, weighs very carefully the advantages against the costs, considers the safety angle, puts on various equipment and probably has his insurance premiums reduced almost immediately, to say nothing of the sudden absence of banged-up fenders and other minor (or major) catastrophies.

The former type can be somewhat readily compared to the penny-pinching type of yachtsman who does not carry an anchor on his boat because there is nothing in the law compelling him to do so. He is the type who buys the very cheapest and smallest fire-extinguisher that will pass the law, and later on finds out that it won't even put out a simple waste-basket fire. But what can we do about it? All we can do is offer certain so-called "educational" information; we can try to make operators "safety conscious"; and that is the purpose of this article.

If you look carefully you'll observe that this operator has not waited for legislation, but has equipped his vehicles with a fender-mounted turn-indicator device in front.



Here's a close-up of the fender-mounted turn-indicator used by The Fidelity Storage Company of Philadelphia. We are showing this particular device as typical and only because it is the newest one that has come to our attention.—Editor.

There is no doubt but that most motor vehicle acidents are traceable to a comparatively few well-defined causes which can easily be singled out and sometimes intelligently dealt with. Official records show that one of the greatest of highway hazards has to do with making turns and that most of the causes of accidents occuring while making turns, are traceable to faulty signalling, no signalling at all, or a mis-understanding of signals due to that all important factor—the human element. Accidents involving a parked car leaving the curb are in many cases due to similar causes.

Today there are some 23 million motor vehicles travelling our streets and highways and it is a safe bet that a large majority of them (by far) are not provided with means of informing others of a contemplated turn, although the average motor vehicle turns and crosses the paths of other motor vehicles many times each day.

Many and varied noble efforts have been made to provide a standardized system of hand-signalling, but again the human element has fallen down on the job and you will have a hard time if you try to find two drivers who signal exactly alike. Even if everyone were to signal in exactly the same manner,

(*Please turn to page* 55)

And in the rear he uses a variation of the same device, but mounted with a universal bracket to the bottom of the truck body. The left one is illuminated.

. . . the Proof of the Grinding is in the Seating

● Perfect seating valves are probably the greatest factor in getting maximum fuel efficiency from today's motors.

More than a score of leading manufacturers recognize this and, to insure that their vehicles leave the production lines with the finest seating valves possible, have adopted *ECCENTRIC* Valve Seat Grinding for their production.

Thousands of car dealers, independent shops and fleet operators have adopted *ECCENTRIC* Grinding for service because accurate and absolutely uniform valve seating is imperative if the motors they service are to give maximum satisfaction and economy on the road.

The proof of the efficiency of any valve seat servicing method is in the seating of the valves serviced therewith. If the experience of leading manufacturers, dealers, service shops and fleet operators isn't enough proof of the superiority of *ECCENTRIC* Grinding to warrant your ordering a model E-S Grinder from your Jobber, write us today for a Free Demonstration by a Factory Representative.

● Above shows E-S Grinder with Diamond Dresser Stand supplied as standard equipment.

HALL MANUFACTURING CO.
1620 Woodland Ave., Toledo, Ohio, U.S.A.
In Canada: Walkerville, Ontario

***ECCENTRIC* GRINDING HAS BEEN ADOPTED BY**
Allis-Chalmers, Autocar, Briggs-Stratton, De Soto, Chrysler, Continental, Curtiss-Wright, Ford, G. M. C. Truck, Hug Truck, International Truck, Hall-Scott, Lincoln, Massey-Harris, Plymouth, Reo, Rolls-Royce, Studebaker, White Truck, Willys-Overland, Daimler-Benz, (Germany) Leyland, (Eng.) Citroen, Renault, (France)

HALL *ECCENTRIC* Valve Seat Grinder

If Your Cost Records are Bothering You

•

Here's a Simplified System That Will Tie Up Nicely With the Tire Records Offered Last Month

•

By Wilson C. Bray,

B. F. Goodrich Rubber Company, Akron, Ohio.

LAST month we attempted to outline a practical method, with variations, of keeping tire mileage records. Such a system is of little benefit, however, to an operator who does not keep a detailed cost record of other items than tires and where such a record is kept, the tire record system is a valuable supplement.

In order to assist those fleet operators who have not up to the present time been successful in keeping any detailed figures on the performance of their vehicles, we have developed the following simple system, which consists of but two forms. These are illustrated herewith, and in order that you may become thoroughly familiar with the system, it will be described in detail in the following paragraphs.

The first of these two forms is shown in Figure 1, and is called "Journal of Daily Motor Truck Expense." This form has been developed primarily for keeping a record of the ordinary day-to-day expenditures.

Often the smaller operations have a major part of their service work done by a local garage or truck agent. In such cases, invoice numbers and costs may be noted in the proper columns, under the classification which they fall—such as motor, chassis, electric, body or transmission.

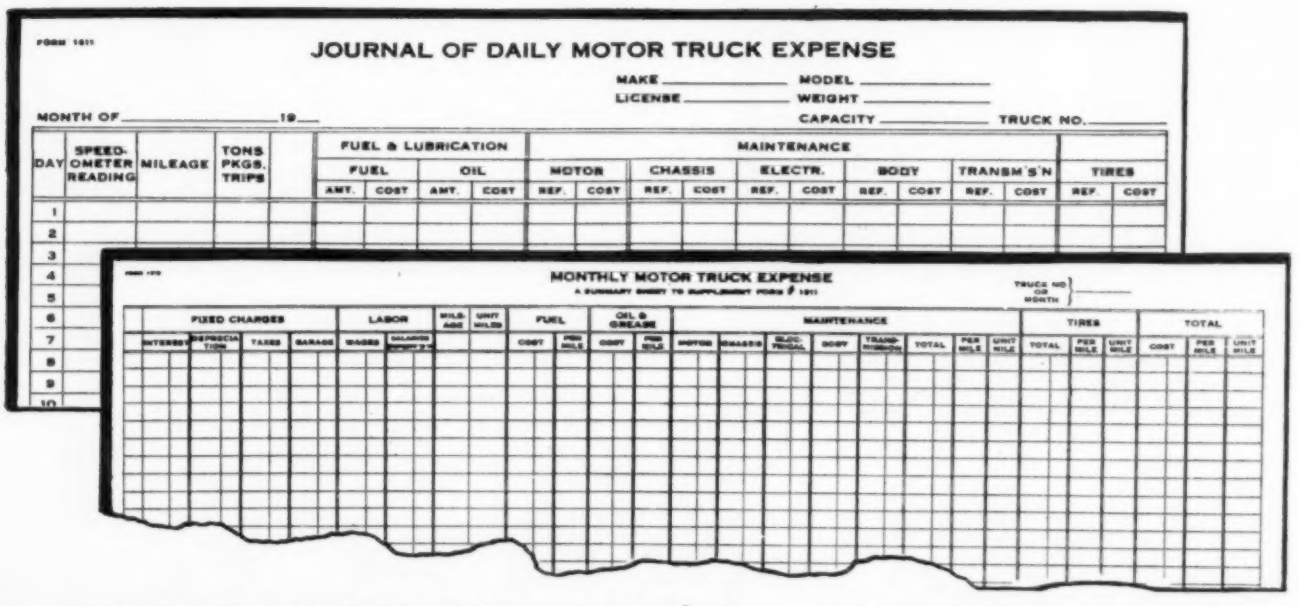
On these operations, tires are usually purchased for some particular truck. Therefore, they must be charged against the maintenance costs of that truck. Of course, on larger operations, tire costs are usually grouped by sizes and charged to each truck in proportion to the number of miles operated, as described in the September issue of this publication. (See pages 24, 26 and 28).

Next is the form entitled: "Monthly Motor Truck Expense," illustrated in Figure 2. This form has been developed to summarize the items described in the preceding paragraphs in a comprehensive manner. In addition to the items listed on the form, "Journal of Daily Motor Truck Expense," fixed charges such as interest, depreciation, taxes, garage, etc., are provided for.

The reader will notice that the first column on the extreme left of the monthly truck expense form, (Figure 2), has been left blank; also that the heading at the extreme right provides for either truck number or month. In this way the form may be used either to summarize the expense chargeable to each truck for any given month, or it may be used to summarize one particular truck over a period of several months. (Information as to where these forms may be secured will be furnished by the Editor of this publication).

There have been numerous instances where tire mileage and cost records have been installed, but not followed up properly. The result is that the fleet operator will then begin to lose interest in mileage and cost records. A well-kept tire mileage and cost record affords the operator a means of checking all items of vehicle performance, including tires. With such a record he is able to definite-

(*Please turn to page* 49)



JOURNAL OF DAILY MOTOR TRUCK EXPENSE

MAKE _____ MODEL _____
LICENSE _____ WEIGHT _____
MONTH OF _____ 19__ CAPACITY _____ TRUCK NO. _____

DAY	SPEEDOMETER READING	MILEAGE	TONS PKGS. TRIPS		FUEL & LUBRICATION				MAINTENANCE											
					FUEL		OIL		MOTOR		CHASSIS		ELECTR.		BODY		TRANSM'S'N		TIRES	
					AMT.	COST	AMT.	COST	REF.	COST	REF.	COST	REF.	COST	REF.	COST	REF.	COST	REF.	COST
1																				
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				

MONTHLY MOTOR TRUCK EXPENSE

TRUCK NO. OR MONTH _____

FIXED CHARGES				LABOR		MILS. ADD	UNIT MILES	FUEL		OIL & GREASE		MAINTENANCE							TIRES			TOTAL		
INTEREST	DEPRECIATION	TAXES	GARAGE	WAGES	SALARIES			COST	PER MILE	COST	PER MILE	MOTOR	CHASSIS	ELEC. TRICAL	BODY	TRANS. MISSION	TOTAL	PER MILE	UNIT MILE	TOTAL	PER MILE	UNIT MILE	COST	PER MILE	UNIT MILE

Here are the two forms, Figure 1 at the left, and Figure 2 at the right. Many requests have been received for forms of this kind in recent weeks; therefore this presentation should be quite timely. We'll tell you where to procure these forms. Just ask us.—H. C. F.

DANGER AHEAD

ANOTHER WINTER LIKE 1933-34 MAY RUIN THE FINISH ON YOUR EQUIPMENT!

PROTECT YOUR INVESTMENT BEFORE IT'S TOO LATE — REFINISH NOW WITH VALENITE

LAST winter's icy blasts wrecked the finish on many a fleet. These ordinary finishes showed they couldn't "take it." They cracked—fell down on the job when temperatures stayed below zero day after day. And remember, this havoc cost fleet owners a lot of money.

Play Safe

Unless your fleet is protected, another winter like 1933-34 may ruin the finish. So play safe. Use the Valenite System on all your equipment now. Then you'll *know* your fleet will "come through" 100%. For Valenite—made by the exclusive Valenite Process is the *real* protection for all wood, metal or composition surfaces—it stops the destructive effects of extremes of weather and other wearing agents. To make sure that your fleet is protected the *right* way, ask Valentine & Co. for full instructions on how to use the Valenite System.

Write for Free Service

Valentine's Technical Fleet Service Dept. will gladly take up with fleet owners their individual problems such as systems of finish to use, color combinations, etc. Write us your problems or ask for the services of a representative. This offer is entirely free of obligation. Feel free to use it at any time.

VALENITE

"The Modern Vehicle Finishing System"

VALENTINE & COMPANY
386 FOURTH AVENUE, NEW YORK CITY

12 Emily St., Cambridge, Mass.
20 North Wacker Drive, Chicago, Ill.

Valentine & Company, Dept. FO-10
386 Fourth Avenue, New York City.

Dear sirs: I am interested in protecting my fleet against the damaging effects of below-zero weather. Please send me your booklet, "Valenite, The Modern Finish."

Name .....

Address .....

Say "I saw it in FLEET OWNER"—It Helps!

Calling Your Attention to Air Cleaners

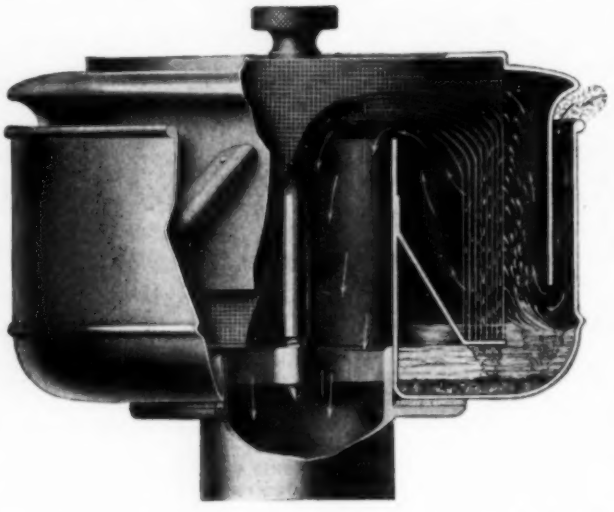
Air Cleaners Have a Direct Bearing on Operation and Maintenance Costs • Is Sufficient Attention Being Paid to Them?

FLEET owners and operators, no matter how carefully they scrutinize their operating cost sheets, seldom catch the actual cause of much premature engine wear and expense. They may know maintenance costs "to a fraction of a mill" but often they do not stop to consider the basic condition which makes so many repairs and replacements necessary.

That condition literally is "in the air." If there is any one thing that does not belong in an automotive engine it is dirt—in *any* form. Working tolerances are altogether too fine to permit dust, dirt and grit to get among the finely machined parts without causing havoc in their closely balanced action.

Yet the dirt gets in there just the same. It comes into the engine with the gasoline mixture. For, every cubic foot of air that is drawn in through the carburetor, brings with it the dust, dirt, grit and other foreign matter that is always held in suspension by the atmosphere.

True enough there are many devices, some often being supplied as standard equipment, that are put there for the purpose of screening out the dirt. But calling a device an air cleaner does not make it one. Something, of course, is gained by keeping out *part* of the dirt. But it's a problem that must be licked *in its entirety*, if it is to be licked at all.



Here is one of the latest types of air cleaners, especially designed for heavy-duty units, although it is available for lighter ones, too. The cut-away view shows the series of mesh screens, divided by baffles, the oil reservoir, and the course that the air takes before entering the carburetor.

Some of the largest fleet owners in this country, who watch and check every phase of truck and bus operation down to the last tenth of a cent, have found that efficient air conditioning is one means of showing a real saving in fleet operation, both in mileage and up-keep costs.

Now just what is "air conditioning" when this term is applied to the motor bus or truck? Well, here is a startling fact. When your truck or bus engine consumes a gallon of gasoline, it also consumes 1,200 cubic feet (8,400 gallons) of air. That is about ninety pounds of air to the gallon of fuel.

Every fleet operator knows that his vehicles run on a certain mixture of gas-vapor and air. Exclude the air, or the oxygen it contains, and there will be no combustion.

While this fact is elemental, few fleet operators stop to think what it means to take that amount of air into an engine, when the air itself is not in a fit condition to be consumed. Air, strictly speaking, is *never* clean. It always contains dust, dirt and minute particles of grit and grime. We all know that. We all see it every time we drive our cars and notice how often the windshield has to be cleaned. But we rarely stop to think that the same dirt which accumulates so rapidly on our windshields is being drawn into the power plants of our trucks, buses and passenger cars.

It is rather obvious that this dirt is not a good thing for the engine. As a matter of fact it is one of the most expensive and destructive risks to which the modern automotive power plants can be subjected. The danger that such incoming dirt sets up is manifold, and the chief hazards are well known.

Dirt in the fuel mixture is almost always the primary cause of premature cylinder wear. Almost every reboring job can be traced back to the entrance of excessive dirt through the carburetor. It also is the contributing cause to the early formation of carbon and particularly hard silicon carbon, which is difficult to remove. Then, too, it is the primary reason why oil becomes contaminated, for practically all of the dirt that gets into the oil, comes into the engine with the fuel mixture.

The carburetor air cleaner is of vital importance to those who must have long, dependable and economical service from their motor vehicles. Dirt entering through the carburetor and mixing with the lubricating oil keeps grinding away whenever the engine is running and is the principal cause of rapid wear of all moving parts such as pistons, rings and valves as well as the cylinder walls.

Thus, the dust problem is very serious to the fleet operator who must get the greatest economy from his hauling units, yet must operate over unpaved roads or in dry, dusty conditions. The farmer, the dump-truck owner, the contractor, the road-builder and the intercity trucker, probably more than any other classes of fleet owners, must operate their vehicles where dusty conditions are especially severe, and for them in particular, the air cleaner should be of especial importance.

At the same time, however, no vehicle is absolved

The Most Jack in the World

Words fail us. Help us pick the adjective that best describes our S4 Hydraulic Service Jack that has the biggest range of any jack built. We have considered "serviceable," "beautiful," "durable," etc., but none does this great jack justice.

Help us out, and maybe you'll win a swell prize. See below.

HYDRAULIC S4

Ranges from 3¾" low to 24" high — a full 20¼" lift. Rolls under any car, front or rear, no matter how low it is with a tire flat. Capacity 6000 lbs. Note housed-in mechanism and enclosed controls.

BIG PRIZE CONTEST

WITH your suggested word describing our S4, send us a 25-word letter telling why your adjective fits our jack. For example: "Your S4 is the Most WONDERFUL Jack in the World because, etc. etc."

Look at the swell prizes we are putting up, and note that there is nothing to buy, or any other jokers in this contest—which closes Dec. 1st. So let's have your adjective and 25-word letter soon.

1st Prize—our 45CB, Junior Treasure Chest. The mechanic's pride—a 100% useful assortment of our niftiest Socket Wrench units, complete in steel case. Worth $45.00 of anybody's money.

2nd Prize — our 27CB, "Hot Box" Wrench Set. Twenty-seven of our most useful Socket Wrench units in steel case. A $25.00 value.

3rd Prize—our L8 Hydraulic Jack. The only hand jack that handles all knee-action cars, as well as older models. Retails at $9.50, on the West Coast $9.95.

4th Prize—our T7, "Warrior" Jack. A nifty hand hydraulic that handles most cars and light commercial jobs. Retails at $5.45, on the West Coast $5.85.

BLACKHAWK MILWAUKEE

BLACKHAWK MFG. CO., Dept. FO-10, Milwaukee, Wis.
Enclosed is my "adjective" and 25-word letter — enter me in your Prize Contest.

Name.....

Shop Address.....

Preferred Jobber.....

Say "I saw it in FLEET OWNER"—It Helps!

SOME FACTS ABOUT AIR CLEANERS (*Continued*)

from this dust menace. It is evident to a more or less degree wherever trucks or buses are used, and savings in costs can be effected in direct proportion to the amount of abrasive sucked in with the fuel mixture.

Air cleaners are made in three major types. These are identified as dry filters, dry centrifugals and oil-bath filters, the objective of all being the same—that of separating the dirt and fine dust from the incoming air.

The efficiency of the air cleaner depends upon its ability to do two things well at the same time. It must filter all of the dust from the air and must not restrict the passage of that air to the carburetor which would result in loss of power.

Several oil filter types which utilize the oil-bath principle are illustrated within this article. They have found favor with many large operators. In these cleaners the air is drawn through without impairment of engine power and the particles of dust and dirt are completely separated from the incoming air, it is claimed. These air filters are practically self-cleaning and the oil-bath needs changing only at infrequent intervals.

Engines not originally equipped with a crankcase breather protector should be sealed with a smaller air filter at this point to assure exclusion of all dirt. This is an important detail that is entirely too often overlooked by most fleet operators.

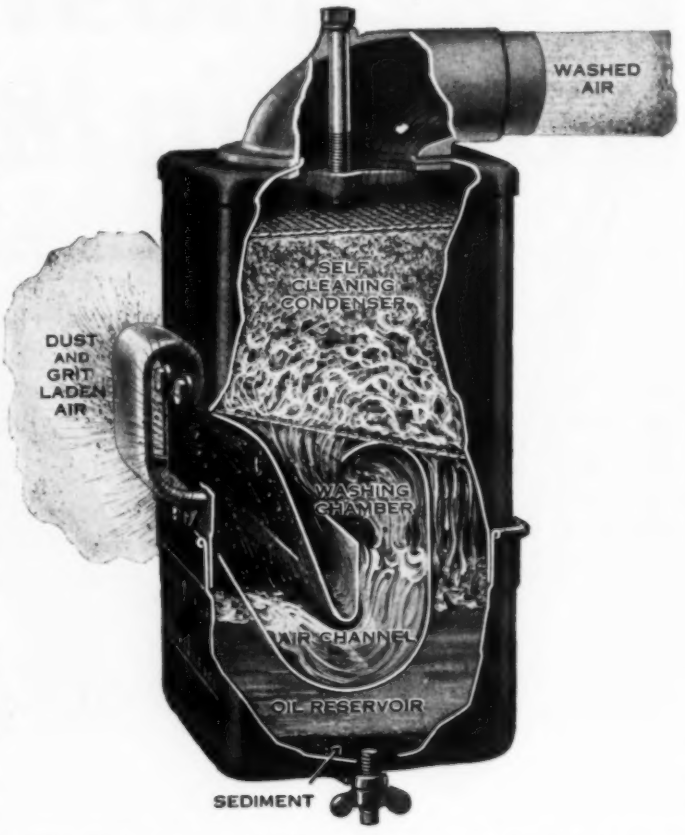
A study of air conditioning by two large public utility operators gives the striking information that in one case the cost per mile of operation was $.0994 without air cleaners. This figure dropped to $.0819 in the following year, when the fleet of 400 trucks, operating over five million miles, had been equipped with efficient air filters.

State Highway Department truck equipped with air-cleaner of the oil-washed type.

The second case in question was that of a division of the largest national fleet owner. This division, completely equipped with an efficient filter, led the entire country in low cost of operation, which saving could be attributable, partially at least, to the fact that air conditioning was in effect. This study was conducted over more than 14,000,000 miles of operation.

Some time ago a series of interesting tests on air cleaners were conducted by an engine manufacturer, in collaboration with an air cleaner maker. The actual operating conditions, as far as possible, were reproduced in these tests.

The tests covered a period of several months, during



Here's another recently developed air-cleaner. This one is claimed to be self-cleaning. This view shows how it works.

which time an ingenious dust-accumulating machine was employed to load the air going to the carburetor with various kinds of dust and dirt found in the several districts of the country, and under the various conditions where engines would be normally required to operate.

The conclusions reached as a result of these tests were that the oil-reservoir type of air cleaner is best suited for heavy-duty service; the tests also showed that this type of filter effectively prevented wear in those portions of the engine ordinarily affected by dust conditions.

It goes without saying, therefore, that every piece of equipment powered with a gasoline engine, whether it be a bus, truck, tractor, agricultural or industrial machine, is faced with the problem of overcoming the harmful effect of excessive dust conditions, either in the shape of ordinary road dust or that which is present in quarries and the like, or during building operations. Under certain dusty conditions, it is possible for an engine to be literally "worn out" in a week's operation, and to meet this problem a highly efficient air cleaner is essential.

(Editor's Note:—There are, of course, other makes of air cleaners on the market. We have not tried to illustrate all of them, nor to influence you in any way as to which particular make is best. Engineers agree, however, that the oil-wetted type of air cleaner is the most efficient that has been produced up to the present time. The thing to remember is that air conditioning has a direct bearing on operation and maintenance costs, and we really believe that the subject should receive as much attention as lubricating oil, tires, etc.—H. C. F.)

LOOK OUT FOR TIRE DELAYS!

AVOID SIDEWALL "FAILURE ZONE" TROUBLES WITH NEW TRIPLE PROTECTED TRUCK TIRES

An important delivery going through. BANG! A tire fails! Broken through the sidewall. Precious minutes pass. Maybe hours. A customer is lost.

The sidewall "Failure Zone" grabs money from the pockets of truck owners every day—every hour. You may be next.

Why not prevent these costly delays before they happen? Goodrich engineers concentrated all their skill on this one problem. They know the sidewall has been the weakest spot in truck tires. They know that 80% of premature truck tire failures occur in the "Failure Zone." They were determined to make a tire with a sidewall just as strong and rugged as the tread. And they did!

Now you can get Triple Protection in truck tires. Positive protection against these unnecessary failures!

That's not all! The new Goodrich Silvertown has a safety tread that guards against skidding and a long-wearing carcass with months of extra service.

HOW TO CUT TIRE COSTS

New Triple Protected Silvertowns are built to wear out—not blow out. They help reduce delays, cut repair bills and provide the lowest net cost per mile. Yet you pay not one red cent extra for these new tires. Start saving now. See your Goodrich truck tire dealer today.

FREE! **Valuable Book**—A copy of the Silvertown Safety Manual for Truck Operators is yours for the asking. How to cut accidents. How to win free Safety Awards. Save money. Write Department T-145, The B. F. Goodrich Company, Akron, Ohio.

THIS GOODRICH INVENTION PREVENTS BIG CAUSE OF SIDEWALL BREAKS

1 **PLYFLEX**—a *new*, tough, sturdy rubber material with greater resistance to stretch. A layer of Plyflex in the sidewall distributes stresses and strains—prevents ply separation—checks local weakness.

2 **PLYLOCK**—the new Goodrich way of *locking* the plies about the bead. Anchoring them in place. Positive protection against the short plies tearing loose above the bead.

3 **100% FULL-FLOATING CORD**—Each cord is surrounded by rubber. With ordinary cross-woven fabric, when the cords touch each other, they rub—get hot—break. In Silvertowns, here are no cross cords. No friction.

Goodrich *Triple Protected* Silvertowns

FOR TRUCKS AND BUSES

Say "I saw it in FLEET OWNER"—It Helps!

as WE GO to PRESS

(News of the Truck Industry)

ATA Convention Postponed

THE first annual convention of the American Trucking Associations, Inc, previously scheduled for September 24, 25 and 26, and so reported in our last issue, has been postponed until October 22, 23 and 24 Delays in NRA approval of procedure for electing permanent members of the National Code Authority made it physically impossible to hold the election at the time of the convention, hence the postponment to the later dates this month

•

New FEDERAL Sales Manager

APPOINTMENT is announced of W. L. Schweninger to the position of Western Sales Manager, Fleet Division, of Federal Motor Truck Company, Detroit, Mich. Mr. Schweninger's extensive acquaintance with national transportation executives throughout the middle west will undoubtedly prove an asset to him in his new position. He will make his headquarters at the Federal factory branch in Chicago. Our best to you, Mr. Schweninger!

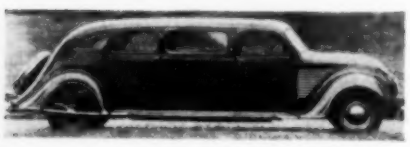
•

May Now Exchange Motors in Mass.

STATE regulations which heretofore have prevented automotive wholesalers from operating the motor exchange plan in Massachusetts, have been revised so as to make this service possible, according to the National Standard Parts Association. Heretofore the motor exchange plan has been operative only through car dealers and distributors.

•

Note for Morticians



TODAY the undertaker is called a "mortician." At New Castle, Ind., an up-and-coming undertaker has gone in for streamlining in a big way. Not for speed, perhaps, but for beauty. Funeral Director Frank Stanley is his name, and his job, illustrated above, was built from a standard model Airflow De Soto sedan. An entire middle section was added, giving the funeral hearse a wheelbase of 156 inches. Knightstown Body Company, Knightstown, Ind, made the transformation

New N. Y. Offices for Acheson

REMOVAL to new and larger quarters at 444 Madison Avenue, New York City, is announced by the New York office of Acheson Colloids Corporation of Port Huron, Mich. The increasing number of staff employees called for by the normal growth in business has occasioned this change, the Corporation states. The entire 36th floor will be occupied at the new address, which is also closer to the midtown area of the city. The business of this office is devoted entirely to field research work; not selling or manufacturing.

•

For Bucking Head Winds

THEY say that out in Wyoming there's a 60-mile head-wind against a truck standing still; and it always seems to be bucking you, regardless of the direction travelled. So the Colorado-Wyoming Express, running between Denver, Cheyenne and other points, asked for a streamlined job. What did they get? See for yourself. A GMC tractor, a Kingham Trailer and a partially insulated body built by the Winter-Weiss Company, Denver, Colo., distributors of Kingham trailers in that city. Quite an attractive looking job; what?

•

REA Uses Motorcycles

TO speed up the delivery of air-express shipments, motorcycles with specially constructed bodies were recently put into service by the Railway Express Agency. An increase of 147% in all classes of air-express for the first half of 1934, compared with the same period last year, is reported by Railway Express' Air division.

•

Harris With Burton Auto Spring

ANNOUNCEMENT was recently made of the appointment of Sid. G. Harris as Eastern Branch Manager for Burton Auto Spring Corporation, Chicago, Ill. He is located at their Eastern Branch and Warehouse, 846 Atlantic Avenue, Brooklyn, N. Y. Mr. Harris, incidentally, is Chairman of the Metropolitan Section of the S. A. E., and was formerly Eastern Manager for Continental Motors Corporation.

New Factory for Spencer Axles

A NEW all-steel and concrete building is nearing completion to house the enlarged forging department of The Spencer Manufacturing Co., Spencer, Ohio, makers of axle shafts. The new addition embraces 5,600 sq. ft. and gives a total area of 37,067 sq. ft. for the machine shop, heat-treating and forge departments. Increased volume is responsible for this plant addition, according to C. H. Davis, vice-president and general manager.

•

Chevrolet Gets School Bus Order

WHAT is said to be the largest order for automotive equipment ever placed by North Carolina, calling for the delivery of 450 bus chasses for use in school districts throughout the state, has been awarded to Chevrolet Motor Company, as low bidder. Order was also placed for 675 bus bodies, to be mounted on these and other longer wheelbase chasses to be acquired later.

•

Cigarette Lighters Held Necessary

IF you are of the school that believes cigarette lighters in truck cabs are simply "gadgets," you're wrong. Martin L. Pulcher, president of the Federal Truck Company, believes them to be a very important safety measure. In fact his Company recently made a public announcement of this fact; also that they are now standard equipment on all Federal trucks. Our editorial on the subject (see page 13 of last August's issue) presented some interesting thoughts too.

•

New Idea in School Buses

A NEW semi-trailer type of school bus, the truck chassis (tractor)

of which may easily be detached and used for other purposes while not in school service, is offered by Marmon-Herrington Company, Inc., Indianapolis, Ind. The tractor is a Marmon-Herrington four-wheel-drive chassis. The bus body is mounted on a semi-trailer and the overall length of the entire vehicle is 33 feet from bumper to bumper. Approximately 77 small children can be accommodated; or 53 large children; or 44 adults. The vehicle is also adaptable to city and inter-city service, the makers state.

COMPARE THE PERFORMANCE

HEAVY-DUTY TRUCK WITH GASOLINE ENGINE

1 AVERAGE FUEL COST: 3¾¢ PER MILE
2 LIMITED MILEAGE PER DAY
3 LOW GEAR UP GRADES
4 HOT ENGINE—CONSUMES MORE LUBRICATING OIL

SAME TRUCK WITH CUMMINS DIESEL ENGINE

1 AVERAGE FUEL COST: ¾¢ PER MILE
2 MORE MILES—OR FASTER TRIPS
3 MUCH LESS GEAR SHIFTING
4 COOL ENGINE—USES LESS LUBRICATING OIL

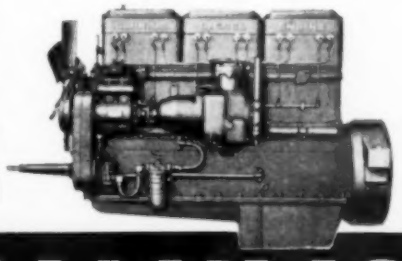
—and then put
CUMMINS DIESEL ENGINES
in **YOUR** *long-haul trucks*

A saving of around 3¢ a mile in fuel cost is *plenty good reason* for installing CUMMINS DIESEL ENGINES in your heavy-duty trucks—but that's not all!

The extra power and speed of the dependable CUMMINS DIESEL gives 10% to 20% more mileage per day—or faster scheduled trips. There's very little gear shifting with a CUMMINS DIESEL under the hood. It has *reserve power* for hills, mud, sand and snow. And in hours of steady service, it never overheats. Lubricating oil lasts longer. In addition to these advantages, CUMMINS DIESELS require less *maintenance expense* than gasoline engines.

No wonder so many fleet owners are *standardizing* on CUMMINS DIESEL ENGINES! Let us send you complete information now—including actual *performance proofs* reported by many users. It costs you money every day you delay!

20 MORE
Ordered by Consolidated Freight Lines Portland, Ore.
In August alone, the 27 CUMMINS DIESELS in this operator's fleet ran more than 200,000 miles. Now CUMMINS DIESELS go into 20 more trucks.



WHEN YOU BUY NEW TRUCKS

. . . buy from a manufacturer who equips with CUMMINS DIESEL ENGINES. Write for list of these companies.

SALES AND SERVICE:

CALIFORNIA
Fresno Motor Sales, 1333 Van Ness Ave., Fresno
Diesel Motor Sales & Service Corp., 2331 East Ninth St., Los Angeles
H. S. Watson Company, 525 Fourth St., San Francisco
COLORADO
Acason-Kayser Diesel Co., 1425 Welton St., Denver
MICHIGAN
Robt. Gottfredson Truck Co., Detroit
MISSOURI
Fleet Equipment Manufacturing Co., 7510 Washington Ave., St. Louis
NEW YORK
Cummins Diesel Engine Corp. of N. Y. 51 East 42nd Street, New York City
Gordon Motor Parts, Inc., 30 Joseph Ave., Rochester
OKLAHOMA
Mid-Continent Supply Co., Philtower Building, Tulsa
OREGON
Diesel Engine Sales & Service Corp., 1329 S. W. Morrison St., Portland
TEXAS
Mid-Continent Supply Co., Holmes Building, Fort Worth
Mid-Continent Supply Co., Houston

•

CANADA
J. S. Innes, Ltd., Toronto, Ontario
HAWAII
The von Hamm-Young Co., Ltd., Honolulu

CUMMINS
DIESEL ENGINES
FOR LOWEST-COST TRUCKING

125 H. P. — 6 CYLINDERS • 83 H. P. — 4 CYLINDERS

MAIL THIS COUPON TO DISTRIBUTOR NEAR YOU OR TO:

CUMMINS ENGINE CO., *Columbus, Indiana*

Please send information about CUMMINS DIESEL ENGINES for trucks. Attached is list of our present truck equipment. FO-104

My Name.....

Firm Name.....

Address.....

City..... *State*.....

Say "I saw it in FLEET OWNER"—It Helps!

QUESTION *of the* MONTH

"By far, one of the most valuable departments to be found in any automotive publication. Every fleet man should be delighted to cooperate."—A Reader

Some of the Interesting Replies to the Retreading Questionnaire (No. 47):

Some Good Advice from L. V. Newton

"HAVE had considerable experience with retreaded tires in our various operations. This work is done in outside shops specializing in same.

"The Hawkinson system is used. No mileage guarantees are made—satisfactory workmanship only. After retreading we get from 60% to 70% of the original mileage in addition. Based on present minimum code prices, retreading costs us about 40% to 50% of the original tire cost.

"Retreads stand up under our most severe operating conditions. We have had no trouble where a good carcass was used. Most troubles seem to come from attempting to salvage casings where the carcass is broken through. Only 6-ply and larger casings are retreaded. We believe the retreading of tires to be an economical procedure under present tire costs.

"We would alvise the following. Don't attempt to retread any tires if the carcass is not perfect. Don't attempt to retread 4-ply tires in smaller sizes."—*L. V. Newton, Engineer, Byllesby Engineering & Mgmt. Corp., Chicago, Ill.*

●

Best Results If Oversize is Used

"WE have had some recent experience with tire retreading, which has proven somewhat satisfactory. Some 6-ply and larger tires were retreaded and we actually got 60% of the original mileage at a cost of 40% of new rubber. An outside shop did the work.

"We find that retreaded tires will not stand very much abuse, and that best results will be obtained if an oversize tire was used, in the first place."—*Floyd Barker, Barker Motor Freight Lines, Lancaster, Ohio.*

●

10,000 Miles and Still in Service

"HAVE had one set of 38 x 7 tires retreaded and used on the front wheels of a 2½-ton G. M. C. truck. These tires are still in service with over 10,000 miles on them.

"We believe that retreading of tires, under present tire costs, is an economical procedure, but we have not had sufficient experience with them to make a conclusive reply.

"On this particular job, 50% of the original mileage was guaranteed and the job cost 30% of new rubber. An outside shop did the work."—*E. A. Quade, Master Mechanic, American Steel & Wire Co., Cleveland, Ohio.*

Retread? Not in Any Case or at Any Price

"IT is MUCH cheaper to purchase new tires after the old ones are worn out than to have them retreaded, according to our experience, particularly if the equipment is to be used in highway operation, on runs of 200 miles or more and where top tire capacity is carried.

"We have had some recent experience of this kind. The tires were retreaded by the Hawkinson process and approximately 60% of the original mileage was guaranteed. The cost amounted to about 40% to 45% of the cost of a new tire and we actually got less than 15% of the mileage. Only 8 and 10-ply tires were used.

"These retreads did not stand up under our severe operating conditions. There was tread separation and weakening of the side-walls, causing blow-outs.

"If retreads are subjected to any heat in operation, or used on long hauls, they are worthless, we believe."—*J. R. O'Connell, Federal Express, Inc., Toledo, Ohio.*

●

Retreads by 3 Different Companies Failed

"WE do not believe that retreading of tires, under present tire costs is an economical procedure for us to follow, as our recent tire experience has not been satisfactory.

"We have had tires retreaded by three different companies and they blew out on long runs, and we consider this proof enough that we should not use retreads. These tires might be all right for light truck deliveries, such as house-to-house work, but they have not stood up under our severe operating conditions.

"No guarantee was provided; we were supposed to get the same mileage as from a new tire. We actually got about 10% of this mileage and the retreading cost us from 50% to 75% of the price of new tires."—*J. D. Zerbo, Cost Accountant, Strietmann Biscuit Co., Cincinnati, Ohio.*

●

Skeptical on Long Hauls and High Speeds

"OUR recent experience with tire retreading leads us to believe that it is an economical procedure, under present tire costs. This work is done by specialists and about 50% of the original mileage is guaranteed. The cost is about 50% of the original tire cost, and we actually get about 60% of the mileage, which makes it economical.

"Tires thus retreaded are used only for short haul work. We have obtained very good results on short

(*Continued on next page*)

"Underslung Power!"*

THE GREATEST DEVELOPMENT IN TRUCK TRANSPORTATION

White "PANCAKE" 12 CYLINDER ENGINE

*Copyright 1934, The White Motor Company

THE FIRST AND ONLY UNIT OF ITS KIND IN THE INDUSTRY

"Underslung Power!"

The first and only unit of its kind in the industry

White completely changes the transportation picture with an entirely new design that places payload and power on a profit basis

★ ★ ★

Now comes an entirely new kind of ultra-modern motor truck for city and inter-city service—a heavy duty White with "Underslung Power"—an important step forward in highway transportation as modern as stream-lined airplanes and articulated trains.

To the man who invests money in motor equipment this announcement is the most sensational development in truck history. For these new White trucks are not just new models. They represent an entirely new principle in heavy duty hauling. White discarded all conventional practices and developed new engineering ideas to achieve these new trucks. No effort was spent toward a compromise with old ideas.

"Underslung Power" was accomplished through sound engineering in development of the White 12-cylinder horizontally-opposed engine—the only engine of its kind in commercial use.

The new "pancake" engine delivers Performance and Economy of Operation and Maintenance never before approached by any truck engine in its field.

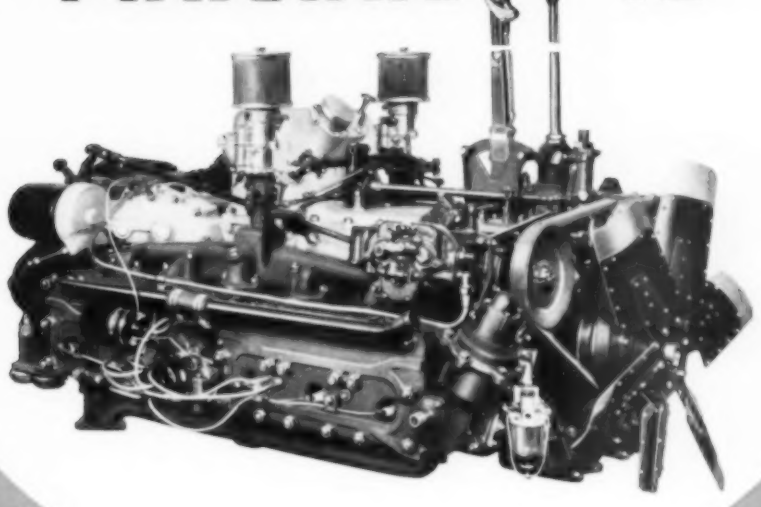
Being of the horizontally-opposed type this new engine is flat enough to be placed underneath the floor—with the cab moved forward to the extreme front of the truck. This modern arrangement of power plant achieves perfect weight distribution with the lowest center of gravity, and greater payload space on every wheelbase.

Throughout the chassis White has achieved something new and better. Outstanding features include—shortest overall length with greater maneuverability—White screwed in Stellite Valve Seats—exchangeable wet sleeves—dry sump lubrication—full floating rear axle—silent transmission—unusually wide tread front axle—air brakes—exceptional visibility, and other safety features. Valves on underside of engine—at lowest point of cooling system

Makes possible more pay load space and greater net profit

24,000 TO
30,000 LBS. GROSS

THE WHITE PANCAKE "12"



THIS exclusive new White 12-cylinder "pancake engine" with "Underslung Power" sets an entirely new standard for Performance and smoothness of operation. It has faster acceleration and better hill climbing ability—makes possible higher average speeds without excessive road speeds and is equalled for flexibility in traffic and lack of vibration only by multi-cylinder passenger cars.

White again leads the way and accomplishes with the "pancake engine" what the conventional large six-cylinder truck engine can not. In the new White the operator pays no premium for superior performance.

The smaller bore of the cylinders means less maintenance, more efficient utilization of fuel, giving greater horsepower output per cylinder and the use of less fuel for total horsepower developed.

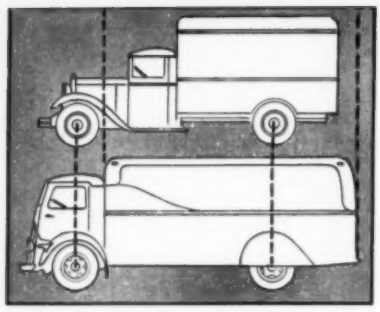
This unique design of the new White 12-cylinder "pancake engine" has been achieved by opening the angle of a "V" type engine so that the two banks of cylinders, containing six each, are horizontally opposed. It marks a fundamental advance in power development and power flow and makes possible ideal engine placement to secure perfect load distribution.

Write for illustrated booklet giving detailed description of the White 12-cylinder horizontally opposed engine

—insure long life by eliminating hazard of low water. Beltless cooling fan, driven directly off end of crankshaft, circulates air over engine and adds to driver comfort by preventing all heat from reaching cab. Accessibility is better than conventional trucks, the engine being easily removed on a dolly. Combine all these features with White's reputation for quality and you have a truck unequalled for Performance, Dependability, Economy and Long Life.

These businesses need this truck—*City and Intercity Contract Hauling, Gasoline and Milk Tank Hauling, Food Products and Chain Stores, Coal Delivery, Furniture Vans and Dump Truck Operation. Model 730 and 731—24,000 to 30,000 lbs. gross weight. Also available in tractor-trailer units with six wheels for heavier loads.*

THE WHITE MOTOR COMPANY • CLEVELAND



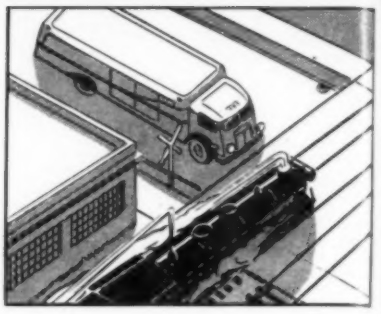
MORE PAYLOAD SPACE

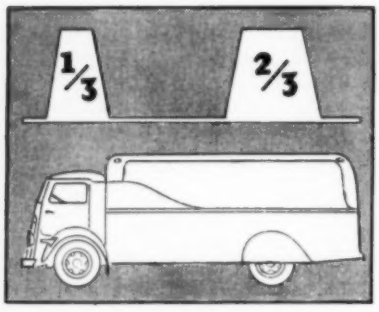
(Shortest overall length)

The new White Models 730 and 731 have the shortest overall length due to the use of the 12-cylinder "Pancake" engine. This makes possible more payload space per foot of overall length. It puts payload and power on a profit basis.

AIR BRAKES FOR SAFETY

Four wheel air brakes of the two shoe internal type with camshaft operation are standard, with large braking area and generous thickness of lining. The gun iron drums are heavily ribbed to insure good head dissipation—and ventilated dust shields are extra insurance of better operation.



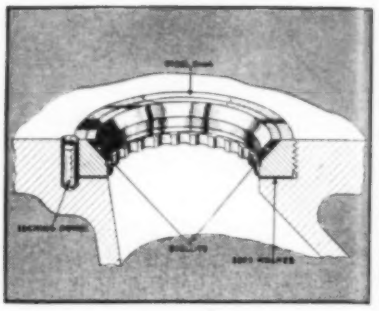


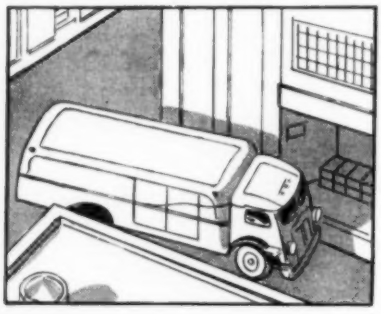
IDEAL LOAD DISTRIBUTION

"Underslung Power" allows the ideal load distribution of ⅓ on single front and ⅔ on dual rear. This makes possible lower operating cost because it assures longer tire life and lower tire costs.

STELLITE VALVE SEATS

White pioneered these screwed in type 100% alloy valve seats. They are so far ahead of other types that valve grinding and tappet adjustment are practically eliminated.



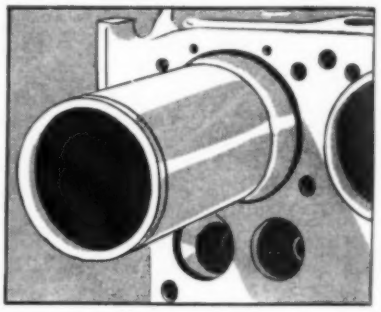


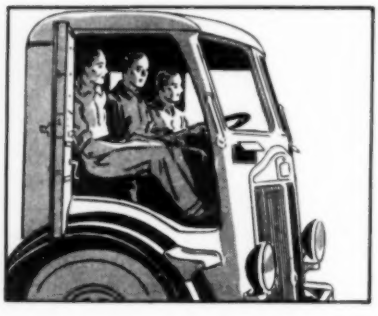
BETTER MANEUVERABILITY

The short wheelbase, the wide tread front axle and the shorter overall length gives better maneuverability. This is of great advantage in congested traffic, narrow streets or operations at platforms where unloading and loading space is limited.

WET SLEEVES

Wet cylinder sleeves of special wear resisting alloy cast iron are inserted and sealed in the main engine casting. The design lowers every maintenance cost in the life of the motor providing quick operation of renewal and shortness of time truck is inoperative.



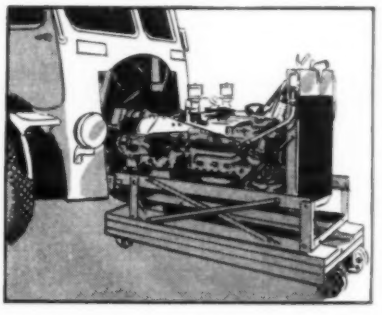


GREATER DRIVER COMFORT

The roomy cab is free from all obstructions. The floor is level and three men can be seated comfortably. The insulated cab is unusually cool due to location of engine and exhaust manifolds. Beltless fan driven direct from crankshaft sends cool air directly across top of engine.

ACCESSIBILITY

For service maintenance operations the power plant is more accessible than any other type. For major overhauls the engine is easily removed from the front. Engine, radiator, instrument panel, transmissions and all accessories are easily disconnected and rolled out as a unit for quick inspection or overhaul.



FOR FURTHER INFORMATION WRITE THE WHITE MOTOR CO. · CLEVELAND

THE NEW

"Underslung Power"

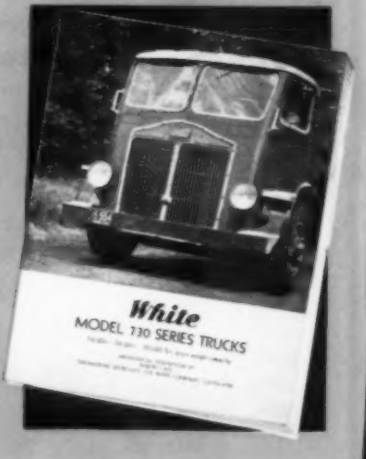
White

WITH 12-CYLINDER

"PANCAKE"

ENGINE

Write for illustrated booklet giving detailed description of the White Model 730 series trucks



MORE REPLIES *to the* TIRE RETREADING QUESTION

haul and low speed work, but we are somewhat skeptical on using them for long haul and high speed work.—*Ben F. Weber, Supt., Columbia Terminals Co., St. Louis, Mo.*

●

Finds Retreads "So Far, So Good"

"WITH reference to the re-treading of tires, for your information, we have been using several kinds of re-treaded tires. The first one we used was the carcass of a tire that was stripped of practically all the rubber on the top and sides and was re-treaded on the top and sides.

"This tire was heated to a high temperature and a mould was used that is practically the same as the factory mould. This re-tread was not as satisfactory as another we are using, as it breaks down in the center and the rubber pulls loose from the fabric. Evidently the high temperature caused this re-treaded tire to break down sooner than the other.

"We find the Hawkinson system of re-treading the better of the two, as they do not heat the tire to a high temperature. They use the inner tube that comes in the tire. They smooth the old tread down to the fabric and place a strip of rubber on the top of the tire and then place a steam band around the strip and melt the rubber onto the tire carcass. We have only been using these re-treads a short time but have found them satisfactory.

"We find re-treaded tires will last much longer in local work, as long trips on hot roads cause them to blow out or cause the rubber to come loose from the fabric. Would advise anyone contemplating the use of such tires to use them on the trailer wheels on the road and on the front, where the truck does not travel at high speeds. We are using some on the driving wheels in the city."—*Gordon, Sewall & Co., Inc., Houston, Tex.*

●

Experience Costly—Would Not Use Retreads

"A FACTORY system of retreading was recently applied to some of our tires and 75% of the original mileage was guaranteed. We only obtained about 25% of this mileage, and the cost of the job was 60% of the tire cost. Therefore we do not believe this procedure an economical one.

"These tires did not stand up under severe operating conditions and we had all kinds of trouble, too numerous to mention. We only retreaded 10-ply tires and larger and our experience had been costly; in fact we would not use retreaded tires even if they were offered free of charge.

"Retreading of used tires might be o. k. for local deliveries, but they are a complete failure for road work, in our opinion."—*Jos. Viscaglia, Mgr., United Van Service, Jersey City, N. J.*

●

(Please tear out and mail to The Editor, The Fleet Owner, 90 West St., New York City)

Question No. 49—Inner Tube Repairs

Do you repair your own inner tubes?..... Or, is this work done outside?.....

What method is used?—Hot vulcanized patch ☐ Cold cemented patch ☐

About how many punctures do you have per month?.....

Please state any advantages or disadvantages experienced with your particular method employed in repairing inner tubes .....

.....

Have any hot patches come loose?..... Have any cold patches come loose?.....

Which method (hot or cold) is best, in your opinion?.....

If you make your own tube repairs, what make or type of equipment do you use for this purpose? (Please list)

.....

.....

What type of vulcanizer is used? Gas-Steam ☐ Electric ☐ Fuel-in-patch ☐

What is the approximate average complete cost per inner tube repair?.....

What is the approximate life of a tube in your service?.....

Do you use puncture-sealing tubes? If so, how do they affect your operating costs? (Please explain).....

.....

Other remarks on the subject, if you please.....

.....

.....

We operate .....Trucks; .....Buses; .....Pass. cars; .....Trailers

Note: If you cooperate with us and fill out this questionnaire, you will be entitled to a tabulated report covering all of the answers.

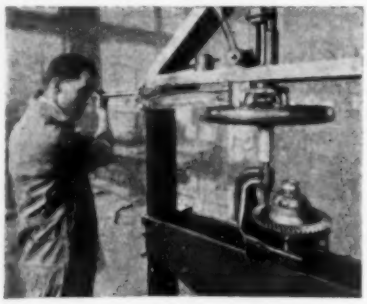
Swap your Maintenance experience with other fleet operators in this easy, convenient way. We do the work. You get the benefit.

Name of Firm .....

Address .....

City and State .....

Your name ..... *Position*.....



The TROUBLE SHOOTER

A department, devoted to correspondence from readers of FLEET OWNER. Any questions having to do with automotive service will be answered in this department. All properly signed inquiries will be replied to by mail and such of them as are believed to be of possible interest to other readers will be published in these columns.

Heavy Loads on Light Vehicles?

Question: We have in mind the purchase of 1½-ton dual-wheel tractors and equipping these with semi-trailers with hydraulic dump bodies, for hauling crushed stone which weighs approximately 2,500 lbs. per cubic yard.

The laws in this state will not permit gross weight of a unit this size to exceed 40,000 lbs. It is our idea to equip the unit with as large a body as practical, somewhere between 8 and 12 cubic yards, giving us a payload of from 10 to 15 tons, if we are able to find suitable equipment.

We would appreciate your giving us any information which you think would be helpful as to this equipment, and if you know of any concerns which are hauling these size loads on light trucks, we would appreciate any figures as to the cost of operation, etc.—R. G. C., Raleigh, N. C.

Answer: We know of several concerns doing this type of hauling; some are using 6-wheel units and some semi-trailers. They do not carry over 9 or 10 tons and they seem to be "getting by" with it. We do not care to go on record as recommending this procedure; it certainly is placing overload stresses on such units as engine, clutch, transmission, drive-shaft and rear axle.

However, it's probably all in the way you look at it. One operator will use light equipment, knowing that its useful life will be short and that its cost of operation might be higher than if it carried its normal loads. He expects the low first-cost of the unit to outweigh the other disadvantages. Another operator will use the heavy, proper unit and figure his costs over a "long-pull" period. Different operators have different reactions to this.

Have you ever thought about using aluminum bodies to cut down gross weight and increase payloads? We believe that you will find this proposition of sufficient interest to investigate. Your local body builder will be able to supply you with the figures.

Should any operators care to give us their experience along these lines, we'd be glad to pass them on to the inquiring party.

●

Tune-Up—Don't Make Changes

Question: What changes must be made in a Ford V-8 to obtain more speed and power? The reason for this question is that I have seen people operate this car and slide the wheels on dry pavement when shifting from 1st to 2nd gear during acceleration.—E. T., Chicago, Ill.

Answer: We are not in favor of this business of sliding wheels on dry pavement. It might be a spectacular demonstration, but it is certainly hard on tires.

With reference to making changes in order to get more speed and power, we were always under the impression that this particular car had plenty of speed and power.

If you are not getting "plenty of speed and power" we would suggest that you give the car in question a thorough tune-up job. We are sending you the official Ford tune-up booklet, entitled "Making Good Performance Better." This should assist you in making a proper tune-up. If you are not well equipped for this work, the Ford dealers are in a position to do a thorough job for you at low cost.

(Editor's Note: Should other users of Ford-V-8 cars or trucks desire free copies of this very interesting booklet, we'll be glad to see that you get one without cost. Just write a line to The Editor of this publication and ask for a copy of the Ford Tune-Up Booklet. First come, first served. This is a 40-page booklet that outlines, step by step, ignition, vacuum, carburetor spark plug and other tests. The procedure is very simple.)

You May Not Believe It!

(But Here It Is)

THE CLAIM:

THE use of a "compression gauge" for accurately determining the condition of piston rings, is unscientific and misleading. A piece of string, felt or leather around a piston will show better compression with a compression gauge than the best piston ring ever made.

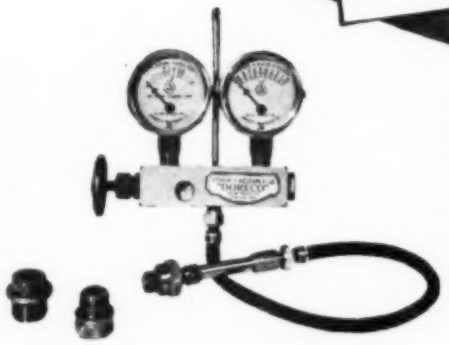
THE REASONS:

THE rated compression of a given engine is based upon the compression ratio or piston displacement. It is computed mathematically and does not take into consideration the speed at which a gauge rating would be taken, throttle opening, carburetor adjustment, valve timing, motor temperature, and many other conditions that vitally affect the pressure reading. Rings that will show terrific blow-by under operating conditions, can check 100% good with a compression gauge; and 100% good rings showing minimum blow-by under operating conditions, can check completely worn out with a compression gauge. The reason for all of this, says "The Perfect Circle Regulator," is that piston rings in internal combustion engines can only be tested for efficiency under actual operating conditions. The Editor would like to hear from fleet maintenance men as to whether or not they can subscribe to the above statements.

CITIES SERVICE OILS
ONCE - ALWAYS

Here's one way POWER PROVER SERVICE cuts maintenance costs

The Cities Service Compression Leakage Gauge eliminates many costly repairs by locating the point of leakage quickly and accurately . . . cylinder by cylinder—also indicates whether leakage is through the valves or past the rings.



MANY times, after ordinary compression tests are made on engines, a complete new set of rings or valve grinding is considered necessary. But—POWER PROVER SERVICE has proved to hundreds of fleet operators that, many times, this expense is *unnecessary*. In this way: the Compression Leakage Gauge...an exclusive, patented Cities Service instrument used during the complete testing and adjusting routine . . . tells immediately in which cylinder or cylinders leakage is present—and whether leakage is past the rings or through the valves. Think of the saving in time and money this brings about by eliminating unnecessary ring replacements and valve grinding jobs.

OTHER SAVINGS, TOO

The Cities Service Compression Leakage Gauge is only one of the money-saving instruments used during POWER PROVER SERVICE and the above is only one of the savings POWER PROVER SERVICE has brought to more than 5000 fleet operators. Other benefits are gasolene and oil costs cut as much as 30%; repair bills and general maintenance substantially lowered; less frequent overhauls.

POWER PROVER SERVICE is available, at trifling cost, to users of Cities Service Petroleum products, and includes these three distinct steps: (1) an analysis of exhaust gases; (2) a comprehensive Testing and Adjusting Routine; (3) use of exclusive, patented Cities Service Tuning Tools and Precision Instruments.

Mail the convenient coupon for more information. No obligation.

CITIES SERVICE POWER PROVER

RADIO CONCERTS—Fridays at 8:00 p. m., E. S. T., over WEAF and thirty-three N. B. C. stations

TEAM MATES

NEW KOOLMOTOR

The famous high-test, anti-knock green gasolene, for which hundreds of thousands have gladly paid 2 cents premium . . . now yours at no premium.

CITIES SERVICE POWER PROVER

The exclusive Cities Service invention that instantly detects unnecessarily wasted fuel and power. Combined with the complete Cities Service tuning routine, using exclusive patented precision tools, it stops this waste.

MAIL THIS COUPON TODAY

CITIES SERVICE POWER PROVER
Room 702, 60 Wall Street, New York

Gentlemen: I am interested in learning more about the Compression Leakage Gauge and POWER PROVER SERVICE in general. Please advise me without obligation on my part.

*Name*_____

*Address*_____

TROUBLE SHOOTERS' DEPARTMENT (*Continued*)

Fifth-Wheel Lubrication for Semi-Trailers

HERE'S a tip which we recently picked up that seems quite worthy of passing on to our readers; particularly those who have been experiencing difficulty in providing satisfactory lubrication for the fifth-wheels of semi-trailer combinations.

After trying various lubricants and different methods of application, with little success, this operator decided to develop his own system of lubrication, as follows:

The platens, or wearing surfaces of his tractor and semi-trailer fifth-wheels were given a thorough sand-blasting, which left the face of the metal in a roughened, or "pock-marked" condition.

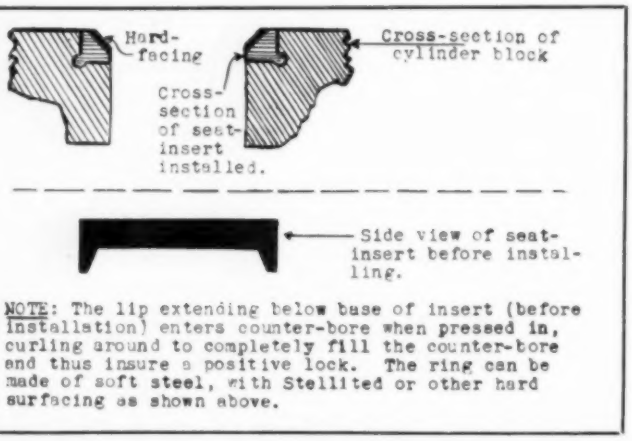
Ordinary flake graphite was then mixed into a thick paste, using pure shellac as the vehicle. (A little heavy cylinder oil can be added to this mixture, if desired.) This thick, pasty lubricant was then applied to the roughened surfaces and allowed to dry thoroughly, providing, in effect, a graphited surface that has a very low co-efficient of friction.

It is claimed that with this set-up, there is less friction than if the best obtainable lubricant were used; that the lubrication is more-or-less permanent; and that unsatisfactory "brush-and-bucket" oiling becomes unnecessary. To back up his claim, he points to the fact that these trailer combinations have been running for six months after being so treated, and the end of the period of good lubrication does not seem in sight.—*Suggested by F. C. Fiechter, Fleet Manager, John Wanamaker, Inc., Philadelphia, Pa.*

●

Fleet Man Designs New Valve-Seat Insert

To the Editor: I have charge of a fleet of trucks owned and operated by the C. A. Durr Packing Co., Utica, N. Y., and have just read the article in your September issue on "How to Rebuild Valve-Seats With Bronze."



NOTE: The lip extending below base of insert (before installation) enters counter-bore when pressed in, curling around to completely fill the counter-bore and thus insure a positive lock. The ring can be made of soft steel, with Stellited or other hard surfacing as shown above.

In this connection, I am sending you a sample of a valve-seat insert, in cross-section. This has been installed in a piece of cast-iron representing a cylinder block.

As shown in the illustrations, this ring is designed with a soft steel back, so that it can be locked into position without danger of coming out. It may be faced with Stellite or any other desirable material. The seat has a lip extending from the bottom outer edge, which lip is tapered on the inside, so that when it is driven or pressed into the proper recess, it will roll itself into the counter-bore, as shown.

After having several factory-equipped valve-seat inserts come loose, the writer designed this one and has been awarded a patent on it. I shall be glad to correspond with interested parties on the subject.—*G. Ernest Meeker, Garage Foreman, C. A. Durr Packing Company, Utica, N. Y.*

●

Why Tin-Plating for Pistons?

MANY requests have been received recently for information concerning the benefits of tin-plated pistons which, within the past few years have been featured by various car makers. Here's what Pontiac has to say on the subject:

"Electro-plating of cast iron pistons was developed and first used by Pontiac. The tin-plated piston is covered by patents. Its first use was as a temporary expedient in 1928 without any thought of its possible commercial value. After several thousand miles of operation, it was found that the tin had not melted, flaked off, nor worn appreciably. Further experimental work was carried on and finally put into production on Pontiac cars about three years ago.

"The practical results of tin-plated pistons have been better and the costs less than anticipated, according to Pontiac engineers. Some of the advantages claimed for tin-plated pistons are the elimination of piston slaps and piston seizing, ease of assembling into cylinders during manufacturing, and the cutting down of the amount of slow-speed driving necessary to break in a new motor.

"The tin which is deposited by electro-plating process on the surface of the piston to a thickness of three-quarters of a thousandth of an inch is soft, giving a smooth, almost frictionless bearing surface which withstands high temperatures and which will not seize under load. It permits the use of cast iron for the body of the piston, which expands and contracts at the same rate as the cylinder walls and thus further eliminates the possibility of sticking.

"When any piston is operated, the expansion and distortion causes some points of the piston surface to approach the cylinder wall. This is the cause of seizing at high speeds. With the tin-plated piston, the coating of tin thins down to give necessary clearance but remains intact over the principal area of bearing surface. After considerable running, the soft metal has so formed itself as to compensate for the distortion of the piston and also that of the cylinder. The large effective bearing area thus formed reduces the unit pressure so that the piston does not wear materially."

●

Mathematics of Accidents

IF you cut out of line of traffic, your chances of having an accident are multiplied by 50.

If you drive over 40 miles an hour, your chances of having an accident are multipled by 25.

If you pass another car on a curve, your chances of having an accident are multiplied by 21.

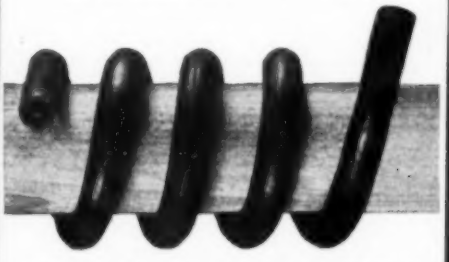
If you pass another car going up hill, your chances of having an accident are multiplied by 10.

If you fail to signal a turn or stop, your chances of having an accident are multiplied by 5.—*American Mutual Magazine.*

YOU NEED A TOUGH CABLE FOR A TOUGH JOB!

THIS WAS OUR TEST

(1)	Hot oil	24 hours
(2)	Oven heat	100 hours
(3)	Hot oil	24 hours
(4)	Salt water	24 hours
(5)	Oven heat	15 hours



THIS WAS THE RESULT

Here is the "FOUR-FORTY" as it came through the tests that destroyed well-known makes of lacquered cable. A secret formula inorganic-base compound gives the new "FOUR-FORTY" its amazing powers of resistance. Its dielectric properties are equally outstanding.

IT TAKES a really tough ignition cable to stand up under the strenuous duties of fleet operation. We were guided by this fact all through our research and development work on the new "FOUR-FORTY."

You can rely on this new cable. It offers a new and greater degree of resistance, not only to heat but to high voltage rupture, oil, age and corona. It is a cable of BALANCED CHARACTERISTICS—built for *all-round* excellence. Its superiority has been clearly established by the tests shown at the left—and confirmed in actual performance on fleet equipment.

Equip one unit with this new "FOUR-FORTY" and verify its merits under your *own* operating conditions. Learn how it eliminates at least one out of every three ignition cable replacements. See your jobber at once and begin to get *better performance* at *less cost* with Packard "FOUR-FORTY." Packard Electric Corporation, Warren, Ohio.

Packard
REG. U. S. PAT. OFF.
TRADE MARK

THE STANDARD WIRING EQUIPMENT OF THE AUTOMOTIVE INDUSTRY

Say "I saw it in FLEET OWNER"—It Helps!

KEEPING TAB on the new INTERNATIONALS

THE new streamlined International trucks recently announced include models ranging from one-half to 5 tons in capacity. The forerunner of this new line, the half-ton Model C-1, announced some time ago, has met with enthusiastic approval and the larger models now being shipped from the factory carry the same distinctive lines and attractive finish.

The new models include the C-20, 1-1½ tons rated capacity, which has a maximum allowable gross weight of 8,300 pounds. It is powered by a four-cylinder engine and is built in two wheelbases; namely, 133 and 157 inches.

The six-cylinder Model C-35, available in 136, 160, and 175-inch wheelbases, is powered by an International Harvester Model FAB-3 valve-in-head engine which develops 78 horsepower at 3400 r.p.m. and 160.4 pound-feet torque at 800 r.p.m. Compression ratio is 5.4 to 1 and displacement 222.7 cubic inches. The rated capacity of this model is 1½-2 tons, with a maximum allowable gross weight of 10,400 pounds.

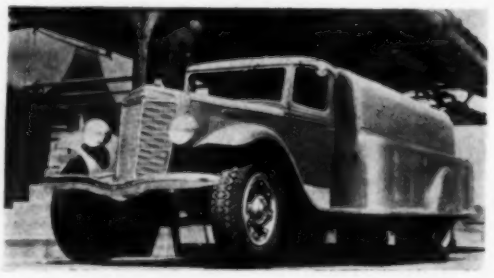
The Model C-40, rated at 2-3 tons with a maximum allowable gross weight of 13,000 pounds, is equipped with the same power plant as the C-35 but instead of a four-speed conventional-type transmission, the C-40 has a five-speed transmission with one reverse. Helical constant-mesh gears in third and fourth speeds assure quiet operation. This model is available in 145, 155, 170, and 185-inch wheelbases.

The model C-50 has a maximum allowable gross weight of 16,100 pounds with a rated capacity of 3 to 4 tons. It is built in 145, 156, 170, and 185-inch wheelbases. This model is powered by the six-cylinder valve-in-head International Model FBB engine, which like the FAB engine employed in the Models C-35 and C-40, has replaceable cylinders, exhaust-valve seat inserts, replaceable precision-type bearings, and other features which contribute to its economy and efficiency.

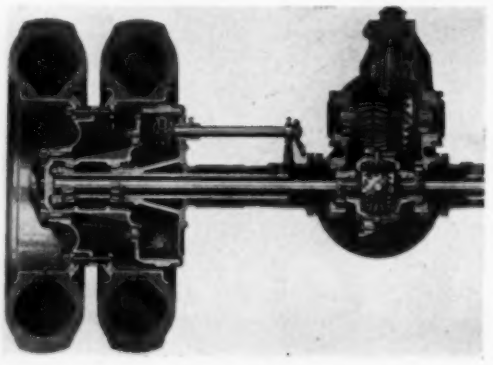
The Model C-50 engine has a 3⅝-inch bore and 4½-inch stroke with displacement of 278.7 cubic inches. It develops 82.3 horsepower at 2800 r.p.m. governed speed and a peak torque of 191 pound-feet at 800 r.p.m. The rear axle is of the spiral bevel gear full-floating type.

The Model C-55, built to carry a total of 14,000 pounds, including body, cab, and equipment, and rated at 3½-4½ tons, has a maximum allowable gross weight of 21,500 pounds. The Model C-60, 4-5 tons, has the same maximum allowable gross weight.

These models are alike with the exception of the rear axle. The Model C-55 has a spiral bevel drive-gear rear axle, while the Model C-60 has a double-reduction axle with herringbone gears for the first reduction. Both rear axles are of the full-floating type. These models are built in 140, 156, 170, 190, and 210-inch wheelbases.

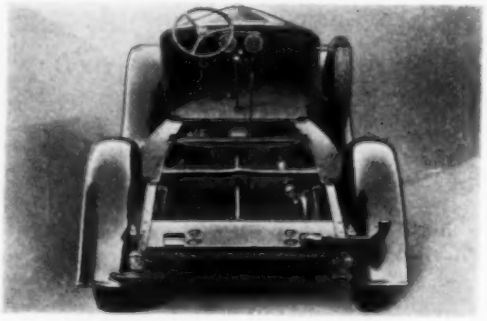


The new International Model C-60, which is powered by a 90 h.p. engine and has a maximum allowable gross weight of 21,500 lbs.



Sectional view of the full-floating, double-reduction rear axle of the C-60 International, shown above.

International Model C-35, equipped with large capacity stock body, which is claimed to have the stock-hauler's endorsement.



Looking at International's new ½-ton truck chassis from astern. By looking at it from this direction, you miss the sloping V-shaped radiator, with polished stainless steel moulding and aluminum grille; also the streamlined hood and fenders.

The power plant of the Models C-55 and C-60 is the six-cylinder International Model FBB-3, also of the valve-in-head type, with replaceable cylinders, valve-seat inserts, and other important features. This power plant—bore, 3¾ inches; stroke, 4½ inches; displacement 298.2 cubic inches—develops 90.4 brake horsepower at 2800 r.p.m., its governed speed. Its peak torque is 213.5 pound-feet at 800 r.p.m.

All of these new Internationals are of the same streamlined design which is carried out in cabs and in panel bodies, as shown in some of the accompanying illustrations. Suitable body types to meet all hauling requirements are available for each of the new Internationals.

Another factor which contributes greatly to the attractive appearance of International models is the finish. The International Harvester Company has recently installed at its motor truck works equipment for applying and baking the latest type of enamel finish, which is baked on and which holds a permanent gloss after the trucks are in service. Chassis, cabs, and various body types are available in a wide selection of attractive colors.

Space will not permit a complete description of each model, but complete literature covering any of the same may be obtained directly from International Harvester Company, Chicago, Ill., or any of its factory branches. When writing for same, mention of this publication will be appreciated.

•

Safety Equipment Displayed

DELEGATES to the Twenty-Third Annual Safety Congress and Exposition in Cleveland Oct. 1 to 5 had an opportunity to study all the latest mechanical and scientific developments in the accident-prevention field.

A model "Safety Town" was set up in the main ballroom of the Statler hotel and there were seen scores of interesting and educational exhibits of industrial safety equipment. A public safety exhibit, including traffic signs, signals and markers, and other traffic safety features, was held in the Cleveland hotel.

Sectional meetings of the Congress were arranged to afford special time for all delegates to view these worthwhile displays.

Various papers were read by fleet executives, some of which we are planning to run in future issues of this publication. You'll be watching for them, won't you?

TOLEDO VALVES ARE PLENTY TOUGH

Built to stand up in even the hardest service, Toledo Super-Forged Valves are made of finest heat-resisting steel. They are guaranteed, and are giving satisfactory performance in hundreds of thousands of motors throughout the world. For better motor performance, equip your fleet with new Toledo Guaranteed Valves in new Toledo Valve Guides.

GUARANTEE

Toledo "Type S" Super-Forged Valves are guaranteed. Your jobber will give you, without charge of any kind, a new valve in exchange for any Toledo "Type S" Super-Forged Valve which proves defective in service.

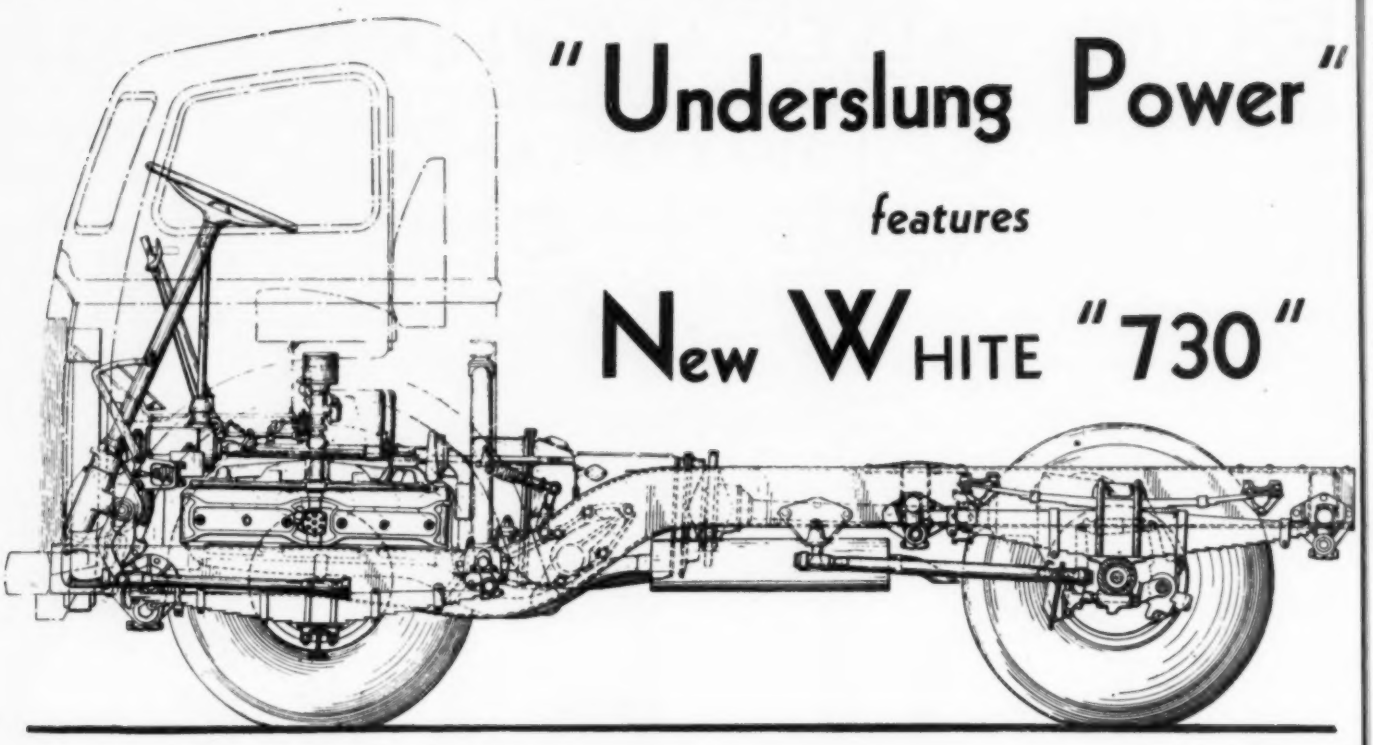
THE TOLEDO STEEL PRODUCTS COMPANY, TOLEDO, OHIO, U. S. A.

New York, 17 W. 60th Street • Chicago, 1225 South Wabash Avenue • Detroit, 660 Antoinette
Atlanta, 279 Ivy Street, N. E. • Dallas, 2805 Commerce Street • Kansas City, 14th and Oak Streets
Los Angeles, 1341 South Hope Street • San Francisco, 528 Larkin Street • Portland, 408 N. W. 12th Avenue • *In Canada: The Toledo Steel Products Company, Ltd., 14 Breadalbane Street, Toronto*

TOLEDO

The Guaranteed Valve

Say "I saw it in FLEET OWNER"—It Helps!



"Underslung Power"

features

New WHITE "730"

A NEW standard in truck design, performance, appearance and utility is set by The White Company, Cleveland, Ohio, in its announcement this month of the new "730" series of White Trucks with "Underslung Power." These are not merely old models with the engines pushed under the seat, but are entirely new trucks from bumper to tail-light, developed after a period of intensive research and study.

"Underslung Power" is accomplished through the use of a 12-cylinder, horizontally opposed (pancake type) engine, similar to the one developed for the White City-Coach. This feature, together with a cab-over-engine design of short overall length, a 1/3 and 2/3 weight distribution, modern appearance and good performance, place the new series in a very favorable position in the industry; in fact the makers claim that these units represent a complete answer to the problem of economical heavy-duty trucking.

Two models are offered in the series, known as Models 730 and 731, both employing the same units, with variations in transmission, rear axle, springs and tires. Gross weight capacities are 24,000, 26,000 and 30,000 lbs. As the illustrations show, the cab is located directly over the engine and a maximum amount of body space is thus made available.

Any weight distribution can be secured on these models, but the maximum body lengths listed for the various wheelbases (which range from 108 to 180 inches) represent the ideal load distribution of 1/3 front and 2/3 rear. Wheelbases available for both models include 108, 126, 144, 162 and 180 inches. The overall length of these models is claimed to be shorter than any truck of like capacity. This short overall length and good turning radius is secured without resorting to extremely short propeller shafts, due to the particular design.

The wheelbases, starting at 108, (with CA dimension of 84 inches) and accommodating an 11-foot body (maximum), increase with standard S.A.E. cab-to-axle dimensions, up to 180 inches wheelbase, which, with a 21½-foot body, gives ideal distribution on tires front and rear. A special tractor wheelbase of 100 inches is provided for Model 731.

The engine used is a 12-cylinder White horizontally opposed type, especially designed for the "730" Series and embodying in all features of design the accumulative experience with this type of engine in larger capacity. Bore and stroke are 3⅝ x 3¾, giving a piston displacement of 465 cu. in. The h. p. developed is 131 at 2800 and 124 at 2400 r. p. m., which is the governed speed of the engine. A high compression ratio makes it possible, the makers state, for this engine to be very economical in service from the standpoint of gasoline consumption.

Compact, streamlined, full-vision cab on the new White "730" Series. Note that three men can sit comfortably. There are no obstructions on the floor or seats. A cross-section of the design is shown above.

Accessibility has been given much thought. Adjustments to generator, air compressor, water pump, etc., can be made without difficulty. The filling of oil, adjusting of carburetor, and testing of oil level are all operations which can be carried out with ease. Valves, spark plugs and distributors are just as accessible as in conventional types and many units are more so. In addition, the engine, transmission, brake controls and radiator are all mounted on a sub frame, which assembly may be removed from the frame as a unit when the time comes for a major overhaul.

As a further contribution to low-cost maintenance, cylinder sleeves of the wet type are used, which together with standard pistons and rings, are offered at an overall cost lower than that of overhauling by regrinding and conventional methods. The ease of replacement of these cylinder sleeves is stressed by the makers.

A seven-bearing crankshaft, integrally counterweighted, carries two connecting rods per crank-pin, operating side by side. Main and connecting-rod bearings are of the steel-backed babbitt type, interchangeable for replacement. A special light-weight cast-iron piston is used, tin-plated and equipped with typical White full-floating piston pins. Connecting-rods are rifle-drilled for pressure feed lubrication to the pin.

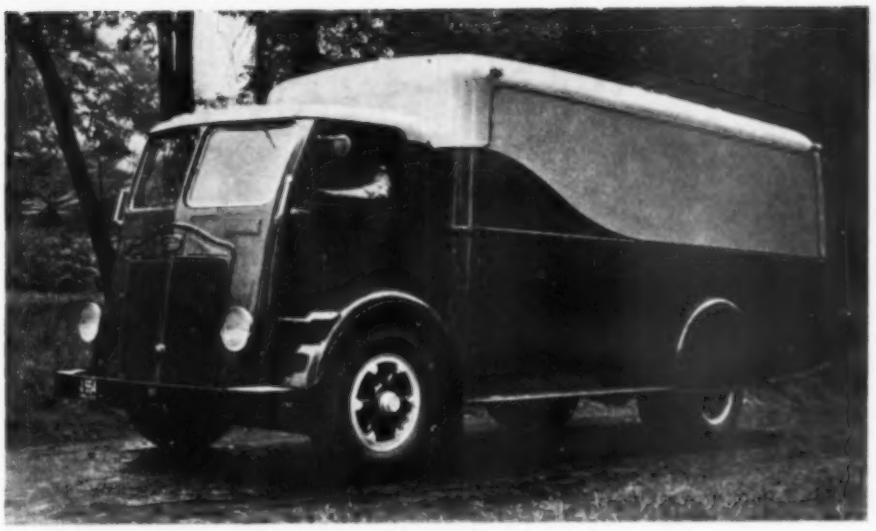
Inserted valve seats, also of typical White design, having Stellited faces, are found under the exhaust valves; these are of the screwed-in and doweled type. In the design of the engine, the valves are on the underside, at literally the lowest point in the water-system, to eliminate the possibility of valve burning due to low water supply.

The crankcase and cylinder block layout makes possible much bridge-like construction to tie together both sides of the engine into one rigid casting. The engine is mounted in rubber at the rear, on a sub frame, which in turn is three-point mounted. having two rigid mountings at the rear and a rubber mounting at the front. The radiator is also mounted on this sub-frame, so that as before stated, the entire power-plant can be removed as a unit.

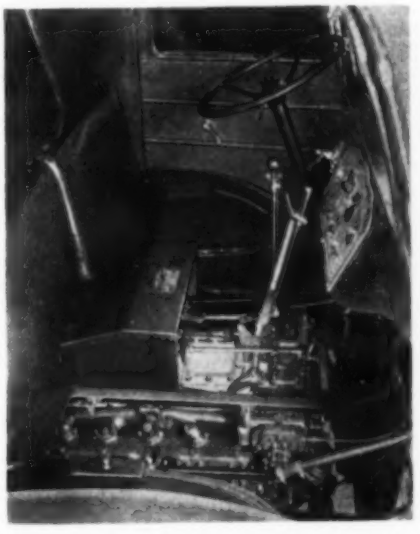
Lubrication system is of the dry-sump type, which means that the oil, which is pumped to the bearings under pressure through drilled passages, is contained in a reservoir on the *top* of the engine. A scavenging pump sucks oil from both ends of the crankcase and keeps it free of oil by pumping it through the oil filter and oil cooler into the main reservoir. From there it is recirculated by a separate pressure pump, to all parts of the engine as in a conventional pressure-lubricated engine.

One camshaft, driven by steel helical gears, drives all of the valves which operate horizontally. Generator and air compressor, the latter being lubricated from the engine pressure system, are belt-driven, as is the water pump. The fan, bolted to a rubber-mounted hub, is driven directly off the end of the *crankshaft*. Accessory units are accesible by removing the insulated floor boards, including distributor, spark plugs, coils, etc., in addition to those mentioned above.

Two downdraft carburetors are used, with air cleaners attached, the latter being favorably located as to accessibility and immunity from road dirt. A mechanically-operated centrifugal governor is set at 2,400 r.p.m. and is driven by gearing off the camshaft.



Equipped with closed van body, the new "730" White makes an attractive unit for city and inter-city freight, food products, chain stores, furniture vans, etc. Other chasses are recommended for milk and gas tank bodies, dump trucks, coal bodies; also for tractor-trailer units, with six-wheels for heavier loads.



This view shows the accessibility of engine accessories. Carburetors and air cleaners are in the "box", which gives additional protection against road dirt.

A single plate, wet type of clutch is used, of typical White design, having a "stabilized" adjustment that provides constant pressure on the clutch plates throughout the life of the clutch and regardless of adjustments.

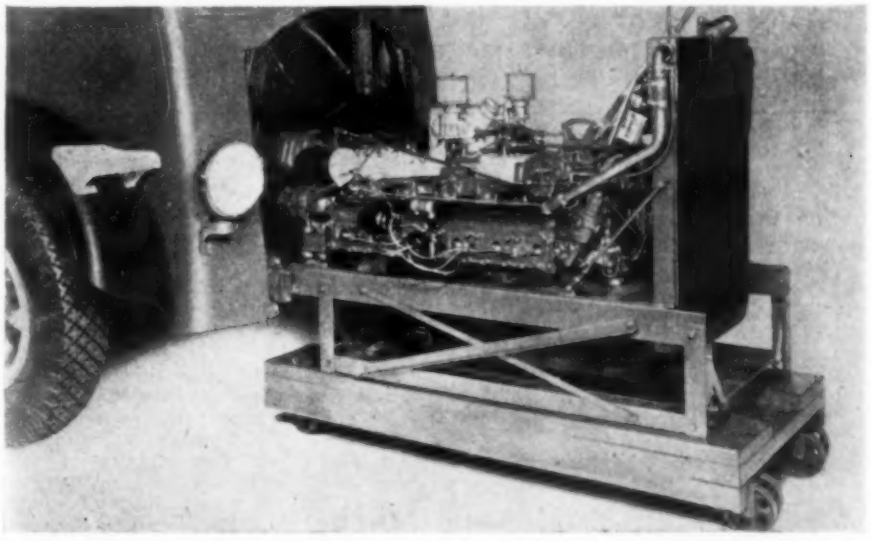
Three White-designed and built 4 and 5-speed transmissions are available for use in these models, the standard being 4-speed on Model 730 and direct-on-5th in the Model 731. Optional at extra cost is a 5-speed over-drive transmission. In the direct-on-fifth job, the 1st gear—and in the direct-on-4th speed job—the 5th gear (an overspeed) is carried in a case built into the rear of the main transmission.

Helical gears are used practically throughout and a special type of oil pump is incorporated in the transmission set-up. The latter consists of a plunger and ball-check arrangement, set into the side of one gear and operated by a cam-surface on an adjacent gear. All gears are made from special nickle chrome alloy and all shafts are mounted on ball bearings. Universal joints are of the needle bearing type.

In the Model 731 a double-reduction, full-floating rear axle is used, having heat-treated steel tubes pressed into the one-piece cast housing. The first reduction is through spiral bevel gears and the second through wide-faced double herringbone gears. Axle shafts are splined at both ends with special dowels transmitting the drive power to the wheel hubs.

The Model 730 axle is identical in construction, except that it has a single-reduction center. Springs are

(*Please turn to page* 57)



And here's how the complete power-plant may be readily removed for thorough inspection or overhaul. A strong sub-frame contains engine, transmission, brake controls, radiator and instrument panel, which are removed as a unit, as shown. Wet-type cylinder sleeves make possible low-cost overhaul.

LOOK HERE!

(for Your Trade Literature)

•

ALL material listed on this page has been personally selected and is recommended by your Editor. Executives of automotive fleets may obtain any or all of them by marking the numbers on the coupon below. You have our assurance that this will not obligate you in any way.—H. C. F.

191. **Free Slide Rule.** Here is a device that unravels all of the mysteries about hot and cold plugs. If you have an engine that's fouling plugs and needs hotter ones, just work the slide on the Champion Spark Plug Slide Rule and presto, you learn the next hotter plug to use. It works the other way too should you need a colder running plug. It's easier to work than the zipper on your tobacco pouch and M. C. DeWitt of Champion tells us that they have plenty of these on hand for free distribution to fleet operators. One will be sent to you immediately; just indicate your desire by marking No. 191 on the coupon below. A very interesting and valuable device.

•

192. **Trouble Shooting Made Easy.** Here's a 44-page book that ought to make an automotive expert out of even your dumbest mechanic. Although designed primarily for the private car owner, it's such a complete and thorough job—in many cases far from elementary—that it's bound to interest fleet executives and their subordinates. The book is divided into easy-to-find chapters each with a staggered heading, so that any difficulty can be looked up in an instant. It should be particularly valuable for drivers who are not thoroughly familiar with the mechanical features of their vehicles. After you have seen one copy perhaps duplicate copies may be wanted. Number 192 on our coupon below will bring you a free copy. It's profusely illustrated with over 120 drawings.

193. **Underslung Power and Pancake Engines.** These might sound like new expressions to you. They are. A progressive truck manufacturer is making them the basis of his latest offerings. Two books are offered on these subjects. Not the usual catalogs—not the usual engineering articles—but attractively illustrated brochures that *explain* rather than attempt to sell; they *entertain* rather than bore. If you want to keep abreast of the latest truck developments, we know you'll send for these two books. Number 193 on the coupon below brings them.

•

194. **Spark Handicap.** There's a new one for the advertising man. There's a new motor disease that we must reckon with. Many engines do not deliver the best that is in them or give the best economy because the ignition system is built too near the "ragged edge" to meet engine requirements. Read *"Facts About Ignition"* by M. Mallory, whose articles you have seen in this publication from time to time. If you want to become an ignition "expert" this book will at least put you one step nearer your goal. And Number 194 on our coupon brings you a copy; free, gratis and for nothing.

•

195. **Heavy Loads on 1½-Tonners?** Although the truck engineer will not exactly advocate your carrying many tons on his 1½-tonner, it's being done in the best of families. Of course there are right and wrong ways of doing it. The use of 6-wheel units is one of the right ways. And the use of semi-trailers is another. Special folders have recently been issued that illustrate and describe new six-wheel units for Ford and Chevrolet trucks. They point out many interesting possibilities. This type of unit is claimed to be the simplest and most flexible. Dare them to prove it by asking for No. 195 on the coupon below.

•

196. **Synthetic Enamels.** Now that you've read our articles on Synthetic Enamels which appeared recently (we hope you've read them), it might be considered good form if you investigated or at least read some literature on the subject. We've included such literature in this department from time to time. The latest literature called to our attention consists of three elaborate folders—one on synthetics, one on lacquers, and one on all other types of finishes made by one manufacturer. Each folder is replete with color chips to help solve your matching problems. Number 196 brings copies of this literature; free for the asking.

•

197. **Aluminum Body Facts.** Every day we hear more and more about the increasing use of aluminum for truck bodies of all types. With state regulations becoming more strict, it's not surprising that operators all over the country are turning to this weight-saving alloy. So that you may be in a better position to weigh all of the possibilities, a very elaborate book has been prepared entitled *"Aluminum for Truck Bodies."* In addition to the advertising material, which you'll find in almost all literature, there's lots of valuable information on the actual building of all types of bodies, from tanks to refrigerators. Plans are also included for many types of vocational bodies. Number 197 brings a free copy of this book to fleet operators.

•

198. **Heavy Hardware Catalog.** We are not the type of individual who tries to disguise a catalog with a fancy name such as "reference book," etc. This is truly a catalog, covering such items as heavy-duty socket wrenches, water-pump and shaft packings; soft-faced hammers; rawhide mallets; automatic lubricators; belt fasteners; polishing leathers, etc. There's also some useful information contained in it, especially valuable to the plant engineer. Number 198 brings a free copy.

•

199. **How to Keep Costs.** An interesting truck-cost system was described and illustrated on page 22 of our September issue. Over 8,000 requests were received for sample sets of these forms. The system was designed especially for the smaller fleet operator. If you have not as yet received your sample set of these forms, which you can put right to work for you, just include Number 199 on the coupon, and we'll see that a set is sent to you right away, with the compliments of the copyright owners.

•

200. **How to Tune-Up the V-8.** If you are using Ford V-8's in your fleet, and many operators are, you should have a copy of this tune-up book entitled *"Making Good Performance Better."* It is a 40-page book that illustrates and describes the whole procedure necessary to put any V-8 engine in maximum operating efficiency. The ignition, vacuum timing, fuel-pump and carburetion systems need no longer be a mystery to you. Since the Ford Motor Company offers this book, there can be no question as to the authenticity of the information contained in it. We'll see that you get a free copy if you indicate your desires with Number 200 on the coupon.

The Editor, FLEET OWNER, ...1934
90 West St., New York, N. Y.

Kindly send me without cost or obligation the following literature mentioned in the October issue. (Order by number)

.....

.....

Name of Fleet .....

Address .....

City and State .....

Your Name ..... Position .....

Number of Vehicles Operated .....

for ROAD and SHOP

Tungar Four-Meter Battery Testers

A NEW four-meter battery tester, which simultaneously tests all three cells of a 6-volt storage battery, has been announced by the General Electric Company's Merchandise Department, Bridgeport, Conn.

The new Tungar tester is equipped with three precision-type voltmeters and a 0-300-ampere ammeter guaranteed to be accurate within 2%. When carbon-pile resistance is applied, the ammeter registers the actual discharge from the battery and the voltmeters record the condition of each cell. The adjustable carbon-pile resistance duplicates automobile starting conditions; faulty cells show up immediately.

The device is completely enclosed and is constructed for either wall mounting or portable use. The four meters are mounted on a black crackle-finished panel which also has a "Condition of Battery Plate" with testing instructions and spaces for pencil notations of meter readings. Studs are provided to which the test clips may be fastened when not in use. The heavy test leads are protected by flexible rubber sheaths.

This G-E Tungar battery tester is also available with iron-vane-type instruments. When so equipped, however, its accuracy cannot be compared to that provided by the precision-type instruments. The price is correspondingly lower.

●

Free Slide-Rule for Spark Plugs

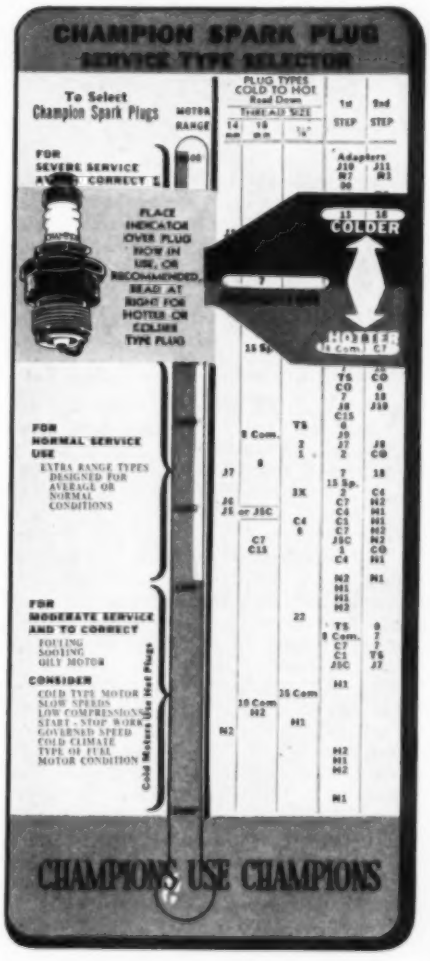
THIS slide-rule, offered free to all operators by Champion Spark Plug Company, is a simple guide to the selection of the correct *type* of spark plug for all passenger cars.

If you have been having difficulty in trying to determine the proper "hot plugs for cold motors" and vice versa, this ingenious device will simplify your task.

On one side is given the correct spark plug recommendation for all cars under *normal* conditions. By manipulating the slide on the opposite side of the rule, you can tell at a glance, the correct *colder* plug, or the correct *hotter* plug to use.

A chart of motor temperature ranges is also printed on the rule, which serves as a guide and gives reasons for the selection of hotter or colder plugs. However, in a few seconds' time, one can pick out the plug necessary just by moving the slide.

As the supply of these is limited, we suggest that you write for one



promptly, if you want it. There are no strings attached to this offer which is being made to fleet executives. Address Champion Spark Plug Company, Toledo, Ohio, or the Editor of this publication for your free Spark Plug Slide Rule. Mention of FLEET OWNER, of course, will speed up your inquiry. We'd appreciate it, too.

●

New Fitzgerald "Bull Dog" Gasket

THE Fitzgerald Manufacturing Company, manufacturers of automotive gaskets, announce the new Fitzgerald Bulldog High Compression Heavy Duty Gasket. A new metal-kore and asbestos filler provide extra strength for heavy duty work, it is stated.

The top and bottom surfaces of this modern gasket are made of copper. Next to both the top and bottom outer surface of copper, a regular thickness of high-grade, long fibered asbestos sheet is placed, thus providing two thicknesses of asbestos instead of the customary one. Between the two sheets of asbestos, there is a metal insert fastened securely in position by means of special pronged barbs. These barbs are imbedded under pressure into both sheets of asbestos, thus welding the two sheets of asbestos and metal-kore into one tight, compact unit. Finally the metal-kore filler is entirely sheathed in a copper covering, top and bottom, to give extra strength and long life, according to the maker's description.

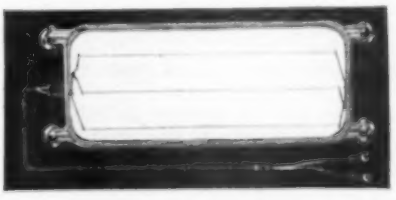
Complete details on the new Fitzgerald Bulldog High Compression Heavy Duty Gasket may be secured by writing The Fitzgerald Manufacturing Company, Torrington, Conn.

●

New Casco Windshield Defrosters

SEVERAL new models of the Casco Defroster are announced by Casco Products Corp., Bridgeport, Conn. These are claimed to prevent condensation or fog in the area of the defroster, and also to melt ice, sleet or wet snow on the outside of the windshield, when the current is on.

All of these models are electrically operated; prices range from 75c to $5.00, depending on size, frame, finish and appointments. Electric wind-



shield heaters and warmers are also described in an interesting leaflet, offered free on request. You'll mention FLEET OWNER, won't you?

NEW STUFF *for* ROAD *and* SHOP (*Continued*)

Jack for Chevrolet, Pontiac

HERE is a new hydraulic jack recently designed by Blackhawk, especially for Chevrolets and Pontiacs with knee-action wheels.

An unusually high lift is required to clear the wheels of these two cars for tire changes or repairs, and the L-8 by Blackhawk, shown here, will do it, the makers state.

The low height of this jack is 8 inches, and a double telescopic lift of 11 inches provides a top height of 19 inches. The capacity is 2,000 lbs. and the jack may be used for other cars and light trucks as well.

The jack weighs 15 pounds and is compact and sturdy, with long handle and sled-type base. Further details; also a very interesting hydraulic jack catalog may be obtained directly from Blackhawk Mfg. Co., Department FO, Milwaukee, Wis. Mention of this publication when writing will be appreciated.

●

A New Tire Valve by Schrader

A. SCHRADER'S SON, INC., makers of pneumatic tire valves for the automotive industry, have developed a new type of tire valve with a large rubber base moulded to the metal stem. This rubber base is cured to the inner tube, thus eliminating all joints around the valve base.

The new method of curing the valve to the tube rubber avoids clamping it in place with nuts and washers. The rubber base is securely attached and has the firm support of an inlaid reinforcement of metal, which is part of the valve stem.

This innovation retains all the time-proven advantages of the metal-stem valve and in addition to the above offers new features of rigidity, durability, appearance and mounting ease.

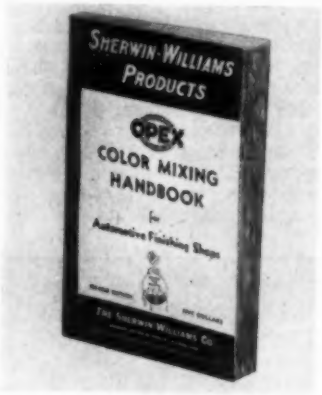
The valve will readily pull back into the tire in case of a flat, if rim nut is not used. It fits any rim hole and can be used on any standard type tube. A few valves replace the entire line of straight and convertible valves for passenger cars and trucks. Write to A. Schrader's Son, Inc., 470 Vanderbilt Ave., Brooklyn, N. Y., for further particulars.

Opex Color-Mixing Handbook

THIS handbook outlines correct and simple rules for color-mixing with satisfactory results. It explains in detail the proper technique for accurate color-matching.

It also describes the individual characteristics of the base mixing enamel colors and gives information covering their correct use. It includes a quick-reference color-mixing chart for ready reference.

A glossary defines all terms peculiar to automotive practice, and special formulae are supplied for matching 1835 of the most popular motor car production standard colors from 1929 to 1934. The book also specifies names of colors used originally by the motor car makers, as to make, year and model of car.



The Opex Color Mixing Handbook is not for sale but can be secured as part of the Sherwin-Williams Opex Slide Rule Color Match Guide introductory assortment. Write to Sherwin-Williams Company, Cleveland, Ohio, for further details.

●

Goodrich Engineer Perfects Endless Belt

A REVOLUTIONARY method of making belts endless has been perfected by Fred G. Skeyhan, a member of the technical staff of The B. F. Goodrich Company, according to a recent announcement.

The improved construction, known as the "Plylock Belt Joint" is said to overcome a difficulty which has been experienced to some degree with all step belt joints—a tendency of the outside seams to open up during severe service.

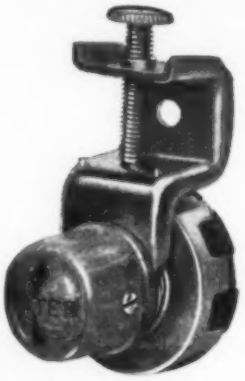
Skeyhan conceived the idea of imbedding or counter-sinking the seam below the surface of the belt in such a position as to relieve the seam from strain and shield it from wear or windage. This protection is made possible by a thick cushion of rubber reinforced with bias fabric which is permanently vulcanized into position.

Although the Plylock Belt Joint has been used successfully in the field by several companies during the last year or two, only recently was it definitely decided to offer it for public use. Patents for the process have been applied for by Goodrich who will license agents, jobbers, and users to make the Plylock Belt Joint themselves after Goodrich representatives have given them complete instructions. The improved construction will, of course, be featured in all Goodrich factory-built endless belts.

●

New Illuminated Switches

TWO new types of switches have been recently announced by Casco Products Corp., Bridgeport, Conn.



One is designed for use with hot-water heaters, to prevent leaving the car with the heater motor running. The other is for use with electric windshield defrosters.

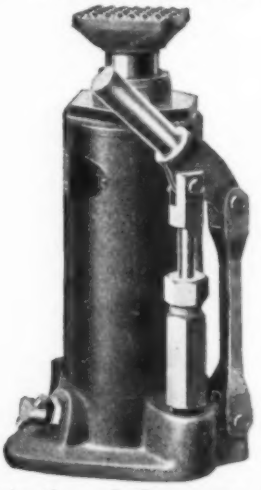
A bulb in the transparent knobs of these switches lights as the current is turned on, thus calling attention to the fact that the switch is on, should the motor be stopped and the car put away. Unnecessary drain on the battery is therefore eliminated. Circular will be sent on request.

●

Hydraulic Jacks from the Coast

OPERATORS of heavy-duty equipment, trucks and buses, will be interested, no doubt, in the improved line of hydraulic jacks recently announced by the Atlas Hydraulic Tool Company, Los Angeles, Calif.

Among the mechanical features pointed out by the maker are: steel base; removable plunger, two drop balls which work vertically, etc. Simplicity of design and few working parts are also emphasized.



Illustrative of these new jacks is the 12-ton model shown here. Further details may be obtained by writing the manufacturer, at 1406 So. Grand Ave., Los Angeles, Calif.

NEW STUFF *for* ROAD *and* SHOP (*Continued*)

New Self-Cooling Truck Tire

A NEW tire, known as the Pennsylvania Self-Ventilating Truck Tire has recently been produced by Pennsylvania Rubber Company, Inc., Jeanette, Pa.

There are no cross bars bridging or tying together the channels or grooves in the center of the tread. This feature is said to permit air to "stream" circumferentially without obstruction. The three extra-wide, extra-deep center grooves become, in a sense, "rolling hoops of cool air," the makers state.

Also, by cutting extra-wide, extra-deep grooves between the spear-headed tread blocks running down the side-wall, air-pockets have been created. As the tread revolves, air whirls around in these interstices, like an eddy.

The Company states that the result of this series of whirlpools of air, is to keep the hottest and most dangerous point—the tread shoulder—cool. They also penetrate deeply into the fabric, keeping the internal carcass cool, it is claimed. Further particulars may be obtained from the Company, mentioned above. Tell them you saw it in FLEET OWNER, when writing, won't you?

•

New Stanley Junior Electric Drill

THE Stanley Electric Tool Company, New Britain, Conn., has recently brought out a sturdy, inexpensive electric drill with a ¼" chuck capacity, known as "Stanley No. 14 Junior." It is recommended for light drilling in wood, metal and composition materials and for running wire wheel brushes, buffing wheels and carbon removing brushes.

Some of the special features enumerated by the manufacturer are: heavy wrought metal motor housing; armature mounted on seal type bearing and long bronze sleeve bearing; thrust ball bearing on spindle; alloy steel heat treated gears; switch conveniently located on motor housing; heavy rubber-covered cable with positive cable clamp on drill which eliminates strain on wire connections; powerful three-jaw chuck; full load chuck speed 1500 R.P.M.

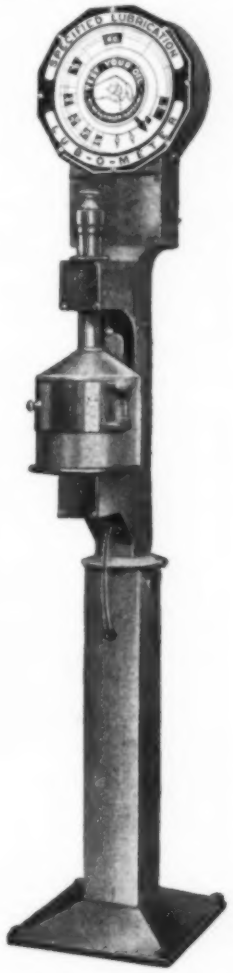
This drill has a universal motor that operates on either D.C. or A.C., 60 cycles or less, and can be furnished in all popular voltages.

•

New Oil-Testing Device

THE equipment illustrated here, indicates whether the oil in the crankcase needs a complete change, a correction or whether it is fit for further use, according to the makers. This is how it works:

A tablespoonful of oil is placed between two steel plates in a lighted chamber. The plates are kept at



crankcase temperature and are pressed to within five thousandths of an inch of each other. Then the plates are gradually pulled apart. The time necessary to break the film of oil, indicates the body of the oil, based upon S. A. E. Numbers. The result of the test is shown clearly on the dial.

The test takes less than one minute. Operators who are reclaiming oil will find it interesting. For further details, address Lub-O-Meter, Inc., 111 W. Washington St., Chicago, Ill.

Thompson Products' New Catalog

SIX new lines of replacement parts have been added to the 1934 Thompson Products catalog, recently distributed to the company's jobbers. These are valve seat inserts, valve springs and retainers, piston pin bushings, packless water pumps, and silent "U" spring shackles, bringing the total of the different items carried to fifteen.

The alphabetical listings in the catalog are divided into two sections, covering motor and chassis parts. These group all parts for each car model horizontally in a straight line, and are intended to simplify the ordering of other co-related parts.

The section of numerical pages and progressive size charts is claimed to be the most complete in the industry for the parts covered. Net prices are included in the back of each catalog. The jobbers' edition will be followed by a smaller catalog for general distribution to the trade.

•

All-Rubber Rear-Vision Mirrors

HUNTER Auto Equipment Company, Inc., announces that, after 2½ years' use, at first experimentally, and after adoption as standard equipment upon vehicles of many motor truck fleets, "NEVERBREAK" rubber-mounted mirrors have been made a standard product of the company.

These all-rubber mirror-heads are made of specially treated, non-drying rubber composition. They have a flexible rim permitting the use of replacement refill mirror-plates at low-cost. These refills are hermetically sealed electrolytically with a deposit of pure copper, insuring freedom from spoilage and turning black. They will not pit, check or streak, retaining their reflecting quality in spite of water, rain, weather and climatic conditions, the manufacturers claim.

The flexible rubber mounting, and protective rubber casing, prevents breakage, reduces replacements and maintenance costs, and eliminates shop work while insuring increased protection for trained men and valuable vehicles, according to the makers.

These 5½ inch diameter mirrors, which, with suitable brackets are applicable for hinge and spare tire usage, are made in all-rubber in both the cab-arm and mud-guard styles. For details address Hunter Auto Equipment Co., Inc., 149 E. 84th St., New York City.

IT *Protects*

YOUR EXPENDITURE . . .

it also protects good publishing!

For "controlled circulation" papers the C.C.A. furnishes a certified audit of circulation.

This audit enables you, as a buyer of advertising, better to judge what you are getting for your advertising dollar.

It also precludes misleading claims about the publication circulation—the publisher is in position to back up good publishing with certified evidence of a job well done.

These factors are worthy of your careful consideration.

Join the C.C.A. by all means if you can but in any event use its audited statements and demand similar authentic circulation data from publishers who are not members.

CCA

Legislation Discussed at Safety Conference

DELEGATES to the Twenty-Third Annual Safety Congress & Exposition in Cleveland attempted to forecast the next year's prospects for uniform motor vehicle legislation early this month. This phase of the traffic question was discussed in a symposium—"The Prospects for Uniform Legislation in 1935"—the last day of the Congress, October 5, in the sessions of the Street & Highway Traffic Section of the National Safety Council.

Among the uniform regulations which received especial attention were standard signs, signals and highway markings; standard driver licensing and standard municipal ordinances for traffic control.

Since a survey recently conducted by the National Safety Council shows that the automobile death rate (per 10,000,000 gallons of gasoline consumed) for the first four months of 1934 increased six per cent in those states without standard regulations and/or administration, while it decreased in those with standard driver license laws and administration by five per cent, much consideration was given to plans urging the adoption of the standard law even more strongly than in past years.

During the same session, Arnold H. Vey, traffic engineer, Division of Traffic Control and Regulation, State Department of Motor Vehicles, Trenton, N. J., as chairman of the Committee on Uniformity, Street & Highway Traffic Section, reported on the activities of the National Conference on Street and Highway Safety.

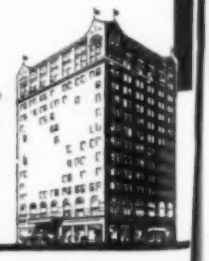
Following this report, projects and plans for the next year's traffic legislation program were outlined by the general chairman-elect of the section.

When Notables visit KANSAS CITY

The register of Hotel President reads like a roll call of the Nation's great. Those who can command the very best anywhere, invariably select this world famous hostelry. You too, can enjoy this comfort and luxury at low cost. Food that is nationally famous served in the Coffee Shop or the Walnut Room. Garage right opposite hotel entrance.

450 ROOMS WITH BATH FROM $2

PERCY TYRRELL
Managing Director



HOTEL PRESIDENT

BALTIMORE AT 14TH STREET ● JUST OUT OF THE NOISE ZONE

G-E Exhibit at Dairy Industries Exposition

"AT the Dairy Industries Exposition, held in Cleveland, Ohio, October 15-20, the latest model G-E Refrigerated Truck Body, embodying all of the newest construction features, will be exhibited for the first time.

In Booth No. 5, reserved by the General Electric Company, this new equipment will be hooked up for electrical operation just as it would be in service for precooling or over-night cooling. H. M. Harrington and L. S. Cooper, engineers of the company's transportation department, Erie, Pa., will be the G-E representatives at the exposition.

●

Buses Pay Annual Tax of 9% on Capital

DURING 1933 public carrier motor buses paid $30,645,700 in taxes, amounting to one-eleventh of the total capital invested in the bus transportation industry, according to figures recently compiled.

The 5,200 public carrier companies operated 45,000 buses during the year, and the average tax per bus was $681. For every $9.25 paid by bus passengers in fare, $1 was paid to the government in taxes.

●

Cost Records Bothering You?

(*Continued from page* 26)

ly tell what vehicles are costing too much; which runs are the most severe and which drivers take the most interest in securing high satisfactory vehicle mileage.

The tire mileage and vehicle cost plan outlined in this and our last issue, offers the operator a means of checking maintenance costs and determining whether or not too many delays are due to tires. It also allows for a very convenient check on various makes and types of tires in use. It further helps in checking faulty or defective mechanical equipment.

It should be remembered that the record of tire performance, however obtained, will not reflect a true picture of actual conditions until one-half an inventory turnover has taken place after the record has been installed.

By this we mean that if it requires 500 tires to equip the fleet, an accurate record will not be obtained until 250 tires have been removed from service with a complete record. On the average, this will require at least six months.

It may in some instances be possible to hasten this by setting up a tire record card for each tire, regardless of condition when the plan is installed, showing the estimated service used. Thus, if when inventoried, the tire shows being half worn out and from then on ran 10,000 miles, it is safe to assume the tire actually ran 20,000 miles during its entire life.

This procedure, while not entirely accurate, its accuracy depending upon the accuracy of the original estimate of service used, will nevertheless show a trend and will serve to keep alive the operator's interest in the tire mileage record plan until such time as the figures become reliable.

Another important point which must be constantly borne in mind is the fact that only comparisons over rather long periods are accurate. Thus, comparing June costs with July costs does not give a true picture. The comparison should be made with like periods of different years. Further, as pointed out before, a sufficient number of removals are necessary to correct for unusual performances in isolated instances.

Prepare for Rain, Slush and Snow with Mileco "Mineral" Lining

Fall—Winter—Spring—wet sloppy weather emphasizes the superiority of Mileco *high-mineral-content* linings. Linings that do not absorb water or get soggy . . . that will not slip though wet, that never squeak or chatter. Standardize on Ebonite for external brakes; twice as much *Mineral*, almost, double stopping power, far more miles per dollar—non-scoring and a "soft" pedal. Use BLACK GOLD for quality jobs for Bendix, Steeldraulic, Lockheed, or Huck Brakes. Minerals? It has the density of cast iron. Not a moulded lining but puddled like iron, heat treated and rolled to radius like fine steel. BLACK GOLD is today's proof of the manufacturer's axiom "Miley is always a full step ahead".

Circulars Free

Test without risk

Ebonite or Black-Gold will be shipped to any rated fleet operator with the understanding that if it does not improve brake action and diminish pedal fade and give more miles per dollar it can be returned any time within six months and the full purchase price will be refunded. Send for test lining today. Stipulate these conditions on your order. Give Make, Year and Model . . . We will send proper materials.

Mileco MILES OF SERVICE L. J. MILEY COMPANY INCORPORATED 1466 S. Michigan Avenue, Chicago, U.S.A.

why not get your

fenders

of your parts jobber?

WHY should you get smaller parts from this convenient source of supply—your parts jobber—and overlook the fact that he can also supply your fender needs?
Jobbers carrying Fostoria Fenders for Ford and Chevrolet as well Dodge and other commercial fleets are located in every community. Write for catalog and prices.
THE FOSTORIA PRESSED STEEL CORPORATION
Dept. O-10 Fostoria, Ohio

GENUINE
Fostoria fenders

THE WORLD'S STANDARD REPLACEMENT FENDER

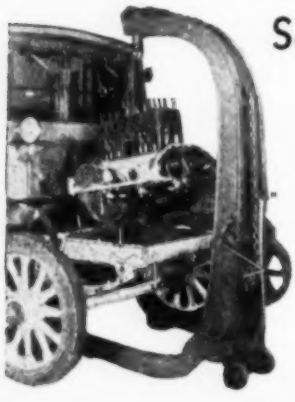
Value When You Go To PHILADELPHIA

600 ROOMS BATHS

A ROOM and A BATH For TWO and A HALF

$2.50 SINGLE WITH BATH $4.00 DOUBLE WITH BATH

HOTEL PENNSYLVANIA
39th AND CHESTNUT STS., PHILADELPHIA



Serves Many Purposes

Canton Portable Cranes are being used to advantage in scores of ways in fleet maintenance departments. For example, when removing heavy duty steel wheels, the crane can be used to raise the vehicle and then lift and remove the wheel itself. Wherever the vehicle may be, the crane being portable, can be easily taken to it—thus saving time and money. Write for full particulars.

THE CANTON FOUNDRY & MACHINE CO.
CANTON, OHIO
New York Office—Room 704
401 Broadway

Analyzing a Typical Fleet Operation

(*Continued from page* 18)

pany. However, there would be no necessity for the day crew to do lubrication work, and the night men could continue doing it.

The proposed preventive maintenance system calls for an inspection every 1,000 miles. Seven of the trucks in this fleet cover approximately 1,000 miles each week and would require weekly inspections. The other trucks, and the coupes and sedans, would require inspections at two, three and four-week intervals, depending on the mileage of each. A proposed preventive maintenance schedule is shown on page 18. One truck could be inspected each morning, as three men should be able to complete the job in less than an hour and a half. This would leave sufficient time to do general service work on the fleet in preparation for afternoon delivery.

Maintenance work could also be carried on in the afternoons, for the spare truck could replace any truck kept in the shop, and one of the coupes scheduled for forenoon use by a collector, could replace any coupe or sedan that was being inspected. The proposed schedule calls for the inspection of two vehicles on many afternoons; there is no interference, however, as one of the cars is a truck and the other a coupe or sedan.

Of course, this schedule may be interrupted at any time when it becomes necessary to use the truck that is scheduled to be serviced, for emergency replacement on the road, or, when it is imperative to complete a major repair job. This would not be a serious situation as it would be an easy matter to "catch up" with the schedule in a short time.

Whenever an inspection discloses the need of extensive repairs, they should be made at the earliest opportunity. Successful results in a system of this sort depends largely on the integrity of the men doing the work. It would be an easy matter to check off many of the items as o.k. without a proper inspection, if the men were lax. Strict supervision should take care of the latter objection; however, it is rather difficult to exercise strict supervision from the main office, when the man in charge of the actual preventive maintenance must do part of the work himself. In other words, a job is more apt to be done if the supervisor can delegate responsibility and still keep an active check, than if the man having the final word in the matter does the actual work himself.

The system of allocation of garage labor costs has been mentioned previously. The author advocates charging the proper labor charge directly to the vehicle worked on, in order to present an accurate picture. Allocating labor in this manner will also disclose idle time and excessive time for particular repair jobs, and should indicate whether or not there is a surplus of help.

Alternative II: The succeeding proposals are offered more as a discussion, as the author does not feel that any system involving a cut in personnel should be adopted in times such as the present. The proposals, however, may be kept in mind until conditions will permit transferring men to other types of work, or until voluntary vacancies occur.

In the second alternative, the fleet could be moved from the private rented garage, located one half mile from the mailing room, to a public garage, located within three hundred yards of the delivery room. The rental charge at the public garage would be about $7.00 per car per month. The average rental figure of the *present* garage is not obtainable, since The Combined

Publishing Company must supply its own heat and power, and these costs are not available as the fleet has been located in its present quarters for but a short time.

The charge for rent alone, at present, is $275 per month. A figure of $300 as an average monthly rental charge, including light, heat and power, should be somewhat conservative. The fleet could be housed in the public garage for about $160.00 per month. The resulting saving would be about $1,680 per year. Arrangements could be made with the public garage management for a private gasoline pump and the use of a wash stand.

Since the public garage has a floor man in attendance at all times to check the in-and-out movements of cars, there would be no necessity for the publishing company to employ its own night men. The night men, therefore, could be transferred to other company duties, such as truck driving, when vacancies occur, and the day men could take over lubrication work in conjunction with the proposed preventive maintenance system.

At present, there are two truck drivers who work afternoons only; one of these men could be used for early morning garage service, for such duties as dispensing gasoline, going out on tow calls and polishing coupes and sedans. The saving under this arrangement would be about $1,700 per year.

Also, the day men would not have to clean the garage, for public garage attendants are usually supplied to keep the garage clean. The time thus saved by the day men could be devoted to other duties. A repair bench could be set up along one of the walls and space could be saved by parking coupes in front of the bench overnight.

There would also be a considerable saving in the time that is now spent by the garage foreman in reporting to the main office; also the time consumed in getting repair parts would be less, since the public garage is located closer to the automotive and accessory supply houses.

An additional saving could also be realized in the operating costs of the fleet, due to the fact that each vehicle would have less distance to travel between the garage and the mail room. Assuming that each truck would save two miles a day, and knowing the running costs of the fleet to be $ .025 per mile, a saving of about $300 per year may be anticipated. Thus the total saving under Alternative II would be about $3,680.

Alternative III: Self-maintenance versus outside maintenance is a much discussed problem and both sides of the controversy have its champions. Probably the only definite way for any fleet owner to determine the most economical method for his particular problem would be through experimentation. The fact that many large operators repair their own fleets indicates that they consider this the more economical method.

A proposed routine for outside maintenance follows: The fleet could be moved to a public garage and the night men transferred to other duties as suggested under Alternative II, with the same resultant savings.

All repair jobs of any importance, as well as the preventive maintenance work, could be done at authorized branches of truck manufacturers. One repair man could be retained for general duties such as adjusting brakes, road service and for locating and correcting minor troubles. The other two men could be transferred to other duties, or the system could be held in abeyance and be instituted gradually as voluntary vacancies occur.

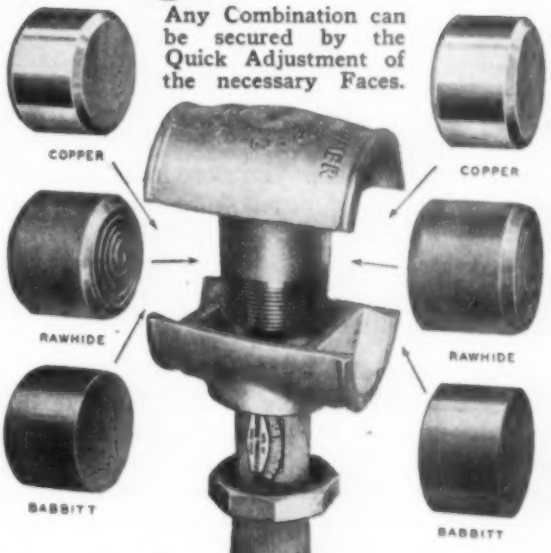
It is interesting to note in this connection that a

The "BASA" HAMMER

Speeds up the work without doing damage

MADE IN FIVE DIFFERENT SIZES

Any Combination can be secured by the Quick Adjustment of the necessary Faces.



The "BASA" meets the demand for a hammer that will provide a striking surface required by various types of work.

In finishing and assembling work it is often desirable to use a hammer that can strike more than one kind of blow.

The Rawhide, Copper and Babbitt Faces make it possible to adapt this hammer to any class of work.

Write for full particulars on the "BASA" and "EMPIRE."

GREENE, TWEED & CO.
Sole Manufacturers
109 Duane St. New York

Take a tip from the man behind the wheel

"LIKE most bus and truck drivers, I am anxious to render good service to my employers and to their customers. Getting there, and back, on time —avoiding time-consuming mechanical mishaps— delivering my load of passengers or merchandise safely—are a pride with me. A long, clean record of efficiency is worth money to me as well as to the concern I serve.

"But I cannot be accountable for the careful servicing of my vehicle. The sureness of its brakes, the unfailing and economical performance of its motor, *the guarding of tires against blow-outs and excessive wear due to improper inflation*—are matters which rest mainly upon the men in the garage *and the equipment which is provided them.*

"Speedy inflation of tires and keeping them positively air-sealed while on the road is mighty important. It helps to avoid many an annoying delay en route. I've seen those ingenious little Schrader valve caps called 'Dublcheks'—an excellent means for providing a secondary air-seal and for adding air without a lot of fussing and fumbling. . . . Air shoots in right through the Dublchek. Nothing to unscrew, replace, become lost—or invite neglect!

"I know that every truck or bus fleet owner can save himself a lot of money and worry by seeing that all his tire valves are re-equipped at reasonable intervals with fresh Schrader Valve Cores . . . and then protected with Schrader Dublcheks."

Schrader Valve Cores (standard of the tire industry) and Schrader Dublcheks are small in size and cost, but mighty in money-saving service. Get them from your regular supplier of tire or automotive accessories. A Schrader's Son, Inc., Brooklyn, N. Y.; Toronto, Canada — *Makers of pneumatic valves since 1844.*

Schrader

Reg. U. S. Pat. Off.

TIRE-SAVING VALVES, CAPS AND GAUGES

"Be sure it's a Schrader — Look for the name"

local sales and service branch of a truck manufacturer recently took over the maintenance of a large fleet in a nearby city. They also hired most of the mechanics who had formerly been connected with the fleet. A similar arrangement may possibly be made with this fleet and a local service branch.

The cost of preventive maintenance, if done outside, would be about $1,450 a year, based on a fleet mileage of 581,000, with preventive maintenance performed on each vehicle every 1,000 miles at $2.50 per service, per vehicle. This would be less than the wages paid to one repairman under the present set-up.

It is impossible to predict whether or not enough money could be saved by having the major repair jobs done outside, to warrant the adoption of an outside maintenance system. It reverts to the question: *"Would the cost of outside maintenance be greater or less than the amount now being spent for repair parts, plus the salaries of the two repairmen who would no longer be needed?"*

If outside maintenance is instituted, each repair bill will include the overhead and profit of the outside service station. On the other hand, it would not be necessary to pay for the idle time of repair men, and less time would be wasted at a service branch, due to specialization of mechanics and proximity of repair parts.

In addition to the foregoing recommendations, the author questions the advisability of The Combined Publishing Company owning and operating its own tow-truck, since most road service calls are cared for with the spare 1½-ton truck. Then too, since the Company's insurance policy covering collision includes towing service as a legitimate item of expense, and since usually the only time the tow-car has to be used, with its hoist, is after a wreck, it is believed that the tow-car could be entirely dispensed with. Or, an accurate record could at least be kept, which would indicate whether or not it would be more economical to dispose of it or to retain it.

(EDITOR'S NOTE: There's more to this interesting thesis on fleet operation and maintenance. In our next issue the author will present a cost analysis of the fleet under the present set-up, and will make specific recommendations to reduce certain costs; other suggestions to effect further economies will also be made. Watch for the article!—H. C. F.)

●

Operator's Refrigeration Experience

(*Continued from page* 19)

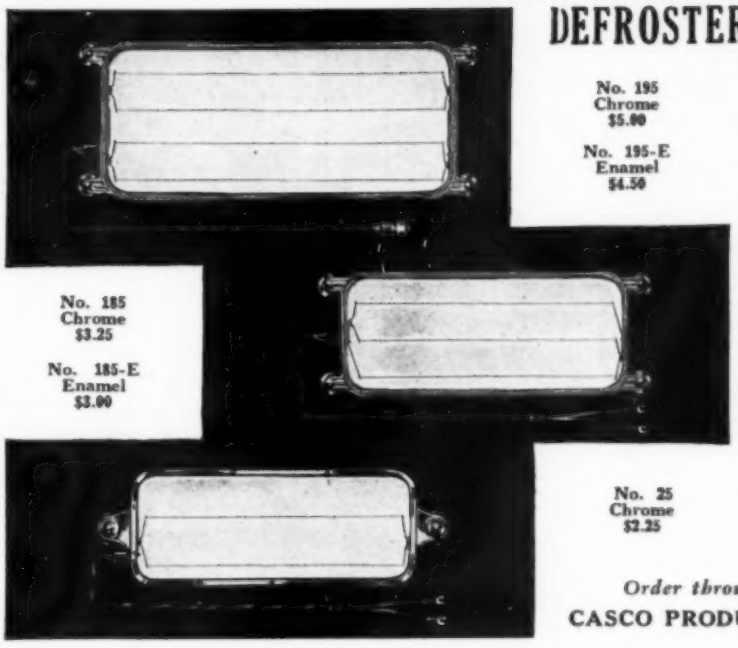
informs him as to the inside temperature of the body at all times. These units are also provided with an extension cord to plug into house or building current outlets, for running the refrigerating plant while the truck motor is not running.

Electrically driven, mechanically refrigerated trucks, at the time of this writing, were available in through service between Wichita and Chicago, operating via Newton, Emporia and Ottawa, and between these cities, operating via Newton, McPherson, Marion, Salina, Junction City, Manhattan and Kansas City, and in direct through service between Kansas City and Chicago.

Each truck is covered by $5,000 cargo insurance against transportation perils, $5,000 property damage and $35,000 liability, with a contingency policy to cover any omission in the original policies and provide full protection to the shipper. Insurance against loss on account of temperature failures or loss due to failure to make scheduled delivery is also available. The Adams System is said to be the first concern of its kind in this

Patent Nos. 1,721,663, 1,681,443, 1,378,604, 1,754,669, RE 17,821, RE 19,145, Can. 324,421, Can. 310,973, other pat. pending.

DEFROSTERS and Electric Ice Sleet Removers



No. 185 Chrome $3.25

No. 185-E Enamel $3.00

No. 195 Chrome $5.00

No. 195-E Enamel $4.50

No. 25 Chrome $2.25

Will prevent condensation or "fog" in the area of the Defroster on the inside of the windshield with heating coil off, and will melt ice, sleet or wet snow on the outside of the windshield with current on.

These new improved Defrosters have heating wires to insure ample heat for coldest days, and steel frames. The rim-seal Suction Cups with adjusting thumb nuts bring the live rubber flange tightly against windshield, sealing the air space.

Narrow metal frame does not impair driving vision. Even heat is distributed over area to be cleared, yet this Defroster will not injure or crack windshield.

Models 75c to $6.50

CASCO Defrosters fit all cars, trucks and buses.

New DeLuxe Model No. 50—18"x7" specially made for trucks and buses, $6.50.

New CASCO Illuminated Switches for Hot Water Heaters, 80c; for Defrosters, 75c.

A bulb in the transparent knob of this Switch lights as current is turned on. Prevents leaving car with current on, thus saving battery current when not needed. Clamps onto instrument panel or through dash. Onyxoid head, chrome trim.

Order through your jobber or write for full information

CASCO PRODUCTS CORP. **Bridgeport, Conn.**

Detroit, General Motors Bldg.

country to extend complete insurance coverage; particularly the guarantee of temperature to products in transit and on arrival.

The first unit of this kind was subjected to a most severe, lengthy test under actual operating conditions. Immediately thereafter, six additional units were constructed and by this writing some twenty-five jobs of this character were scheduled for regular operation; perhaps more of them are now in service.

Upon the inauguration of this service, a very interesting broadside was mailed to over 3,000 shippers in the districts covered by Adams Terminals. In outlining the advantages offered to shippers by this type of service, Adams called attention to twenty-eight specific things, paramount of which was the provisions against loss of cargo on account of temperature failures. Typical advertising literature included the following paragraphs:

"It is unnecessary to shut down your plant or a particular department to load—no delay in icing and precooling. Our truck backs to your door and our men assist you in loading and remain with your load until delivered. This personal contact brings a closer relationship with your buyer, wherein our service can be adjusted to your needs." Another paragraph reads:

"Tele-typewriter service furnishes our Chicago Terminal manager a passing record of your shipments through Kansas City; thus giving your buyers twenty-four hours' advance arrival notice so that our regular truck arrivals enable them to have their customers on hand for immediately delivery—a saving to you—faster market service."

Another paragraph stressed pride in the quality of the commodities which the shipper is marketing and pointed out that all refrigerated vehicles are of like capacities, have uniform paint and lettering, full sanitary metal-lined compartments, clean false floor racks, mechanical refrigeration, forced draft circulation and uniformed, well-governed operators in charge.

●

"New Trucks for Old"

(*Continued from page 22*)

One man is steadily employed in washing and wiping these trucks and also polishing them from time to time. Thus, the trucks always look clean and so help a lot to provide that atmosphere of cleanliness which every progressive baker likes to create in connection with the making and handling of his products.

The Papendick Bakery Company is engaged exclusively in the wholesale business and its leading product is Old Settler bread. Sliced sandwich buns, a new product, are also made. Deliveries are made to grocers, delicatessen stores, confectioners, and restaurants in the greater St. Louis area, the longest run being to Bellville, some twenty-five miles away. The average miles traveled per day (six days a week) are fifty-four, with an average of eighty-three stops per route.

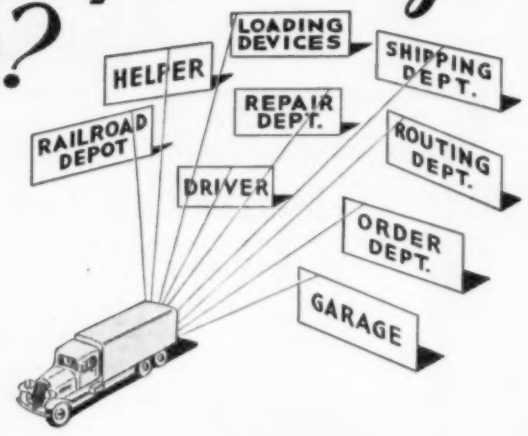
Sales ability, pleasing personality, and good appearance are first requisites in the selection of truck drivers. A campaign on safe driving practices is continually being conducted. Speed, especially, is taboo, and so to prevent any speeding by drivers, each truck is equipped with a governor, the speed limit for the trucks on the longer runs being held down to 30 miles an hour and those on the shorter runs, to less than this limit. Mr.

(*Please turn to page 55*)

How Many Strings to a Truck?

or

Why Does a Truck Stand Still?



PEOPLE used to think it was the driver—when they thought at all. Now they figure differently. And they are discovering a lot of interesting things. Among them this:

Most of the idle time of a truck is due to other factors than the driver.

Perhaps they make a little change in the order department, or some trifling change in office routine, and as a result several expensive trucks increase their running time an hour a day! . . . What *starts* them doing this? . . . When they find out *when* the delays occur, and for *how long*, then they *can't help* going after the *cause*. . . . The *Servis Recorder* automatically shows up all delays on a graphic chart—like pointing a finger at them.

Today more than 100,000 *Servis Recorders* are looking after more than 100,000 trucks, and *those* trucks are keeping busy. . . . Have you investigated it yet?

THE SERVIS RECORDER
"Keeps Trucks Busy"

Write for Bulletin!—Ten Ways of Getting More Work Out of Motor Trucks

The Service Recorder Company
1422 Euclid Ave., Cleveland, O.

Welding Clinic Planned

COMPLETION of plans for the holding of a four-day welding clinic in New Orleans starting October 24th, has just been announced by The Linde Air products Company. This will be the fourth large clinic of this type sponsored by the Company this year, the others having been held at Birmingham, Houston and Cleveland. The purpose of these is to pass on to those interested, the latest information on new developments in the welding and cutting industry. The New Orleans clinic will be held at the Isaac Delgado Central Trades School. Everyone is invited.

Sid West Joins Overman Tire

ANNOUNCEMENT is made by the Overman Cushion Tire Company, that Sid West has joined their staff in connection with the development and promotion of National Account Sales. Mr. West is known to many prominent fleet operators from coast to coast and his successful activities in the transportation field bring to the Overman organization a broad experience in operation and maintenance. His headquarters will be in the Company's New York office, at Rockefeller Center.

Warehouse Facilities Available (Adv.)

EASTERN branch and warehouse of prominent manufacturer of replacement parts for automobiles, trucks and buses, located in New York City, seeks additional line to warehouse and distribute. Has well established business with jobbers and fleet owners; also display space, drive-in service, delivery equipment, etc. Fully equipped to accomplish a thorough job. Might also consider national distribution. Address B. S., c/o Editor, FLEET OWNER, 90 West St., New York City.

Increase Your Export Business (Adv.)

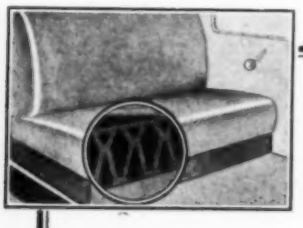
RESIDENT Buyers' Representative, for Western Europe and French Morocco, interested in open lines of automotive products, including replacement parts, accessories and shop equipment. Planning trip abroad in early future. Manufacturers interested in additional foreign business in territories not at present covered, are invited to correspond. Address B. B., c/o Editor, FLEET OWNER, 90 West St., New York City.

PLYWOOD HASKELITE PLYMETL

FOR BETTER BODIES! use PLYMETL

"LIGHTEST and STRONGEST" PANELING

HASKELITE MANUFACTURING CORPORATION
208 W. WASHINGTON ST., CHICAGO



Equip your Trucks with BLACK DIAMOND All Rubber

BACK and SEAT CUSHIONS

They last longer, ride easier and best of all there is no upkeep or repair expense. Used by fleet owners everywhere. Fit any size or shaped cab. Write for complete facts and price list. No obligations.

KARPEX MANUFACTURING CO.
INDIANAPOLIS, IND.

Say "I saw it in FLEET OWNER"—It Helps!

"New Trucks for Old"

(*Continued from page* 53)

Papendick said they began to use speed governors in 1918 and he considers them a big factor in holding down accidents. No-accident yearly prizes also help in the conduct of the company's safe-driving campaign.

An unusually well-equipped and well-lighted garage 150 by 100 feet in size, on one side of which is the loading platform, adjoins the Papendick baking plant. All the units are stored in this garage when not in use. The loading platform is large enough to accommodate twenty-five trucks at one time.

Three men are steadily employed in the garage, one being a mechanic, another is in charge of fuel and oiling and tires, and the third devotes all his time to washing, wiping, and polishing the trucks.

The entire Papendick plant covers an area of 300 feet by 175 feet, is of modern brick construction, and is two stories high. It is equipped with a big traveling tray-type bread-oven with a capacity of 2,500 pounds an hour. Other smaller ovens are also utilized, mostly in making the sandwich buns.

The Papendick Baking Company was one of the first in St. Louis to install a cooling room, which Mr. Papendick considers an important accessory in reducing weight loss and preventing mold. An air-washing machine is used to condition the air for this room which is big enough to cool 3,500 pounds of bread an hour.

The Papendick Bakery was started by Mr. Papendick's father, G. Papendick, 38 years ago. Mr. Papendick was only twenty-one years old when his father died in 1909, and the concern operated only four wagon routes at the time. Mr. Papendick, therefore, has traveled very far on the success route since 1909 when at so early an age he had to take over the reins relinquished by his father because of his death. Mr. Papendick is now assisted in the conduct of his big baking business by two sons.

●

Let's Make Every Turn "A Good Turn"

(*Continued from page* 24)

which could be done with neatness and dispatch out of the left-window, (provided that it wasn't raining, or snowing, or cold, and the window was open) how on earth could anyone, except the "rubber man" of the circus, get his right arm over to the right window, in the event of making a right turn or passing to the inside lane, without leaving his controls and thus further jeopardizing the safety of himself and his vehicle? (*Continued on page* 56)

DEMOUNTABLE TRUCK BODIES

WRITE FOR INFORMATION

ROLOFF, INC.
KENDALL SQUARE
BOSTON—MASS.

The Skinner Stream-Line Oil Filter PROVES Its Worth!

Here's a fleet operator from Missouri. He knows his engines from A to Z. He knows oils, too. But he didn't believe there was a machine that could remove the non-lubricating and destructive carbonaceous matter, silica, etc., from used oil.

Save the Price of a New Car

The new Skinner Stream-Line Oil Filter (Patented) will save you the cost of a new car or a new truck in a year, by enabling you to reclaim 94% to 98% of your crankcase drainings at a cost of only 1½c to 4c per gallon. By using this device you not only save actual cash outlay—but you enjoy substantial savings in operating and maintenance costs by removing their cause . . . hard carbon, grit, dirt, etc.

See This Actual Test

We'll prove it to your own satisfaction (no obligation or cost) with your own oil, in your own plant. Just mail the coupon.

SKINNER MOTORS, Inc.
2225 Dalzelle St., Detroit, Mich.

MAIL THIS COUPON TODAY

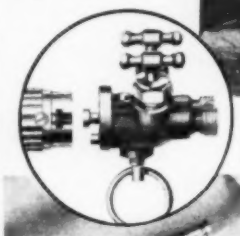
SKINNER MOTORS, Inc., 2225 Dalzelle St., Detroit, Mich.
We want complete details on the new Stream-Line Filter
☐ Have representative call ☐ Send complete information
Name_____ Address_____
City_____ State_____

This Way YOU CAN *Afford All* the blowpipes you need

If you have been trying to *get by* with too few blowpipes because you have felt that a complete set might cost too much, you will welcome the new Prest-O-Weld Detachable Valve Body Blowpipes.

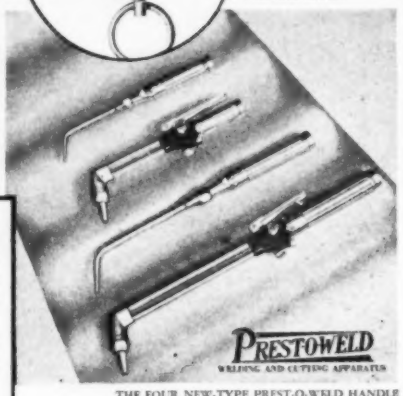
The Detachable Valve Body is interchangeable on all of the four new-type Prest-O-Weld Blowpipes. When you own one (a Type W-106 for light welding, for instance) you can add a larger welding blowpipe (W-105); a cutting attachment (CW-105); or a cutting blowpipe (C-105), merely by buying the necessary handles, which cost much less than complete blowpipes. And in 10 seconds, without disconnecting the hose or using a wrench, you can change from any one to any other.

Ask your jobber to show you how the Prest-O-Weld Detachable Valve Body works.



Above—Ten seconds is all you need to change blowpipes.

Left—The Prest-O-Weld Detachable Valve Body is supplied on all new-type Prest-O-Weld Blowpipes.



★ The new Prest-O-Weld Type C-105 Cutting Blowpipe, for all cutting up to 12 in., is equipped with the Prest-O-Weld Detachable Valve Body.

This light, well-balanced blowpipe is especially designed to resist rough handling. Its patented conical nozzle seat protects the nozzle when the blowpipe is dropped. A cooled tube inside the handle preheats the oxygen and prevents backfiring. The head, cutting valve body, and lever are pressure-forged for added strength.

Prest-O-Weld Type C-105 Cutting Blowpipe, complete with 4 nozzles, lighter and wrench $42.00

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We've tried it, on many occasions, without much success, save for the fact that it provided a perfectly legitimate excuse for "snuggling up" to our best girl on the seat beside us. And why not let your "best girl" make the right-hand signals, some will suggest. It's a fine idea if she happens to be along, but you know what will happen to the truck driver who takes his best girl out on the route. And most trucks are not equipped with helpers to occupy the right-hand seat, either.

Let us give you a few examples, now that we've almost convinced you of the necessity of *some* sort of direction-signalling equipment. The most outstanding one is the right turn. This particular right-hand turn runs into a narrow street or road from, for example, a four-lane highway. Here's what will occur. A large truck or bus must first swing to the left, crossing into the inside lane and in front of vehicles travelling in that lane; and it must later swing back again to the right, re-crossing the outside lane without giving a chance to the cars in the rear. Signalling in a case of this kind is practically impossible, without some sort of a direction-indicating device.

With a suitable signalling device, the turn can be made without trouble, and the size of the vehicle will be of little consequence, particularly if the contemplated turn was indicated at about 200 feet before the turn was actually undertaken. Negotiation of the turn should be made without any confusion, and with the full understanding of other vehicles on the highway.

Another common example. A very wide vehicle, which obstructs the view of everything ahead, travelling on a four-lane highway when traffic is heavy, suddenly finds the outside lane obstructed, or desires to pass a slower-moving vehicle. This necessitates a left-turn into the inside lane and if the body is very wide, hand signalling to the cars in the rear will be quite difficult, if not impossible.

We could go on and on, and point out various other advantages, such as prompt dispatch by traffic officers, especially when making left turns, etc., but anyone familiar with traffic conditions should at once be able to grasp the situation without further recommendations on our part.

With most vehicles *not* equipped with direction-indicators, is it any wonder that we have collisions, and that these larger vehicles are not so popular on the road, especially with the average passenger car owner? If this situation is properly analyzed, reasons for some of the prejudice against larger trucks and buses can readily be ascertained. One of the common reasons is the lack of turn-indicators, because these wider vehicles, unless so equipped, cannot possibly inform others of a contemplated turn, and must cut out across their paths with little or no warnings.

In congested centers, of course, the passing and turning problem has well (?) been taken care of by the use of Stop-and-Go traffic lights, or by traffic officers stationed at important intersections of streets and highways.

On the open highways, the stop-light has been quite helpful, but there still remains the need for suitable turn-indicating devices. The States of Connecticut and Virginia, recognizing this, are providing an impressive and practical demonstration of the effectiveness and service of such devices, and it is reasonable to assume that other states will provide similar regulations, now that practical devices are available.

But the far-sighted fleet operator will not wait for legislative requirements to provide equipment which represents so small a portion of the investment and accomplishes so much toward the general movement of

safety on the highway.

In conclusion, it is only fair to say that there are now many fleet operators who have taken a keen interest in this subject—in fact these are the same men who show intense interest in *anything* which will help build up a better feeling toward their vehicles on the highways. These men are bending every effort to accomplish this, and recognize that when turn-signalling devices become known and better understood, some of the most common causes of motor accidents will have been removed and some of the most outstanding prejudices against trucks and buses will have been overcome.

The annual economic loss due to automobile accidents is stated to be as high as $2,500,000, while over one million persons are injured in automobile accidents in every 18 months. This largely avoidable economic loss in life, property and money, and oftentimes irreparable injury, surely does concern us. It concerns every one who owns and operates motor vehicles.

●

"Underslung Power" on New Whites

(*Continued from page* 43)

semi-elliptical front and rear with shackling at the rear end of the front spring. Rear springs are of the two-stage type. Front axle is of reverse-Elliott type, I-beam in section.

The frame is of the channel type, of heat-treated steel, with a dropped front to take care of the cab-over-engine mounting. It has several tubular and channel cross members to give requisite frame stability without setting up high stresses, the manufacturers state. Steering gear is of the cam-and-lever type, mounted in a saddle and easily removable. Radiator, mounted on the sub frame, is of the flat-tube type and has an automatic valve incorporated in the cap proper, to minimize loss of water due to expansion.

Air brakes of the two-shoe, internal type operate on all four wheels, with moulded lining *bolted* on. Gun iron drums are used, heavily ribbed and the dust shields are well vented to insure quick dissipation of heat. Parking brake is of the disc type, having four shoes; mounted at the rear of the transmission. Cast steel wheels are standard. Tires on Model 730 are 9.75-20, single front and dual rear; on Model 731, 10.50-20, single front and dual rear.

The cab is streamlined, with dash, wheelhousings, front fenders and radiator grille built in. The floor is level, with no obstructions and a fine degree of visibility is present. Ample ventilation is provided, through direct entrance of cool air at the front of the cab. The engine arrangement is such as to provide quick dissipation of engine heat without its entering the cab and the floor boards are thoroughly insulated, as an additional precaution.

The White Company recommends these new trucks for city and inter-city contract hauling; gasoline and milk tank hauling; food products and chain stores; coal delivery; furniture vans; dump truck operators and also for tractor-trailer units with six wheels for heavier loads.

Two very interesting brochures have been prepared by Robert Cass, Engineering Secretary, The White Company, Cleveland, Ohio. One covers the new engine and the other the new Model 730-731 completely. They are profusely illustrated and Mr. Cass will be glad to send you copies if you write him as above. They will be well worth your careful reading, we are sure.—H. C. F.

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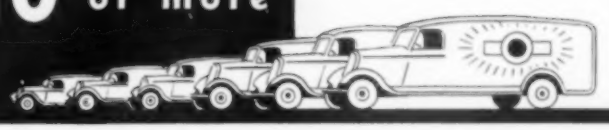

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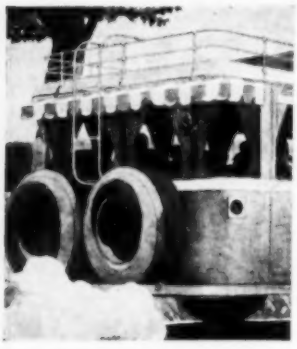

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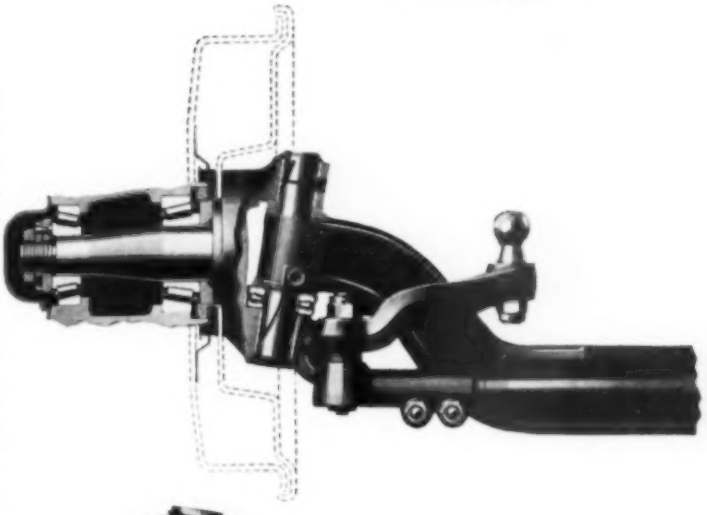

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▼ Reversed-Elliott design eases steering, reduces reaction at the steering wheel due to bumps and uneven braking.

▼ Knuckle pins or "king pins" are extra large, hard surfaced, tough inside. Bushings are expanded in place under great pressure, and spaced for wide "grip" on the pin.

▼ Steering cross tube ends—ball and socket type—have automatic take-up of hardened ball-seats, for natural wear. Ball studs machined from nickel alloy steel, designed and treated for maximum strength at the neck—the point of severest strain.

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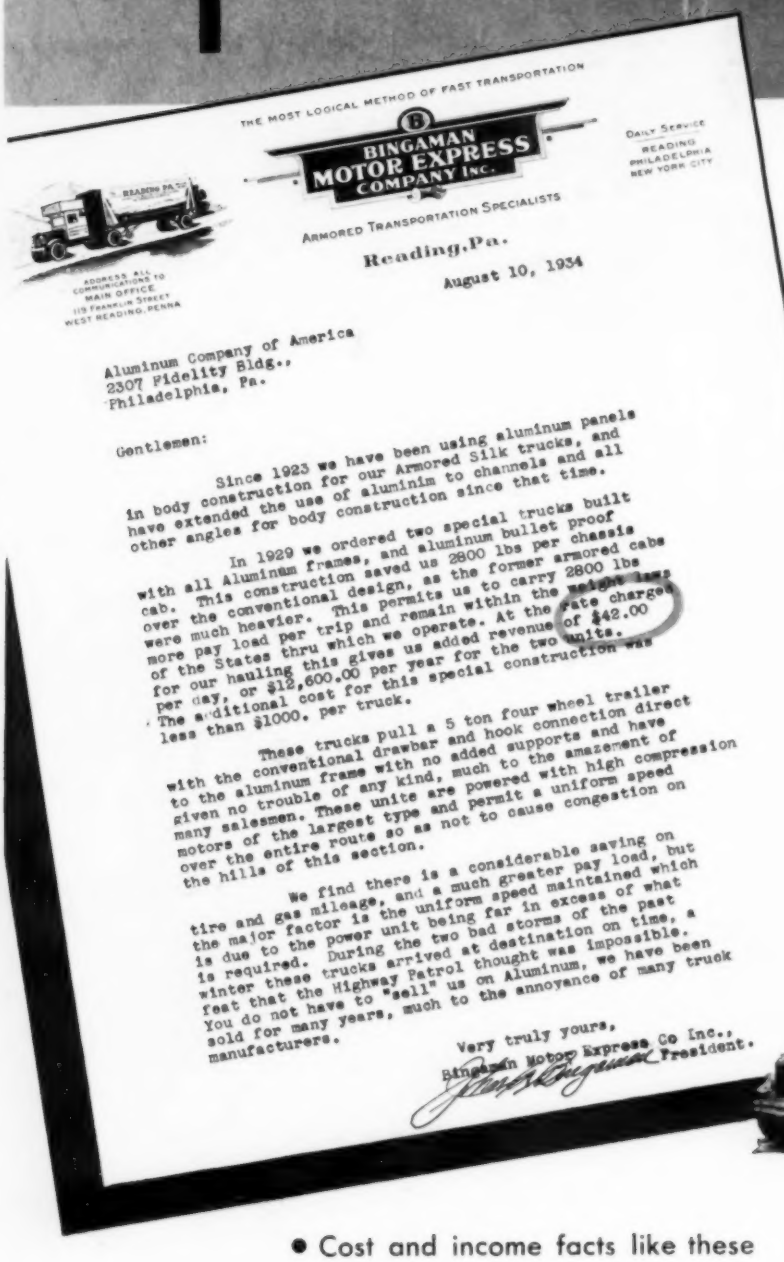

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